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RAIL-ROAD NEWS.

Reading Railroad.

The Pottsville Journal intimates that the running machinery of the road has been worn to the capacity of 36,000 tons a week. It is intended to increase the capacity to 50,000 Of course this implies a considerable expenditure. The Philadelphia Ledger says that certain improvements are suggested as substitutes for a cash dividend. One project is, to build a fleet of very coarse steam vessels, each to carry 600 tons of coal from Philadelphia to New York, in 24 hours, at a paying charge of 75 cents. They can be furnished, it is said, at a cost of $30,000 each, which is much less per ton of coal carried than sailing vessels.—Whatever improvements may or may not immediately be adopted, it seems quite certain the shareholders are to touch no money this year.

Railroad Movement in Arkansas.

A large meeting of the citizens of Phillips County, Arkansas, was held at Helena on the 15th ult., at which it was resolved to organize a company to construct a railroad from Helena to the mouth of Cache or White river; and the citizens west of White river were called upon to co-operate in the work, with a view of extending it to Little Rock, with branches penetrating Northern Arkansas and Southern Missouri, and Western Arkansas, and through Southern Arkansas to Texas.

We hope the people of Arkansas, will go ahead in this good work. No State in our Union, is more in need of, and would be greater benefitted by railroads, than Arkansas. We also advise the construction of good plank roads for farmers.

Obstructions on Railroads.

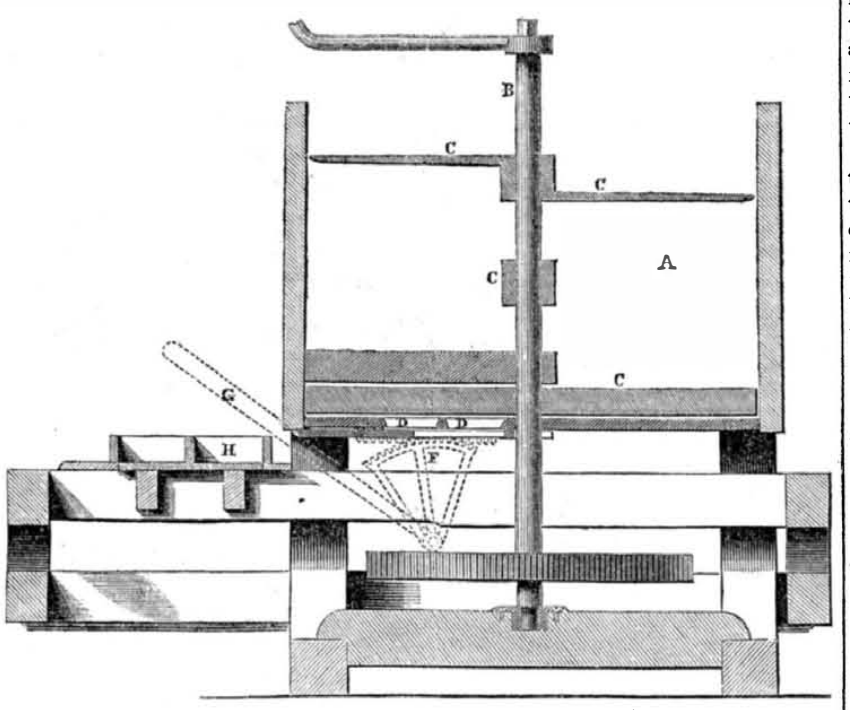
A bill is before the Kentucky Legislature, which makes the placing of any obstructions on a railroad track, displacing of any switch, &c., whereby the cars may be upset or thrown off the track, punishable by confinement in the penetentiary from one to five years; if any life be put in immediate peril by any such obstruction, the imprisonment is to be from two to ten years; and if death be caused, the offender shall be deemed guilty of murder, and suffer death. This would prove an excellent law.

Panama Railroad.

The railroad across the Isthmus was opened on the 8th inst., for part of the whole route. It was anticipated that it would be opened throughout in the course of two months.—Large hotels are being built to accommodate the travelling public, and it is believed, by the end of next year, the journey to San Francisco, from this city, will be as pleasant and comfortable as between this and New Orleans. Great energy has been displayed by our American engineers in laying out and constructing this road.

The Magnetic Telegraph wires have been laid across the bed of the Mississippi river, opposite St. Louis, insulated in a thick casing of lead pipe.

LONG'S BRICK MACHINE.---Fig. 1.



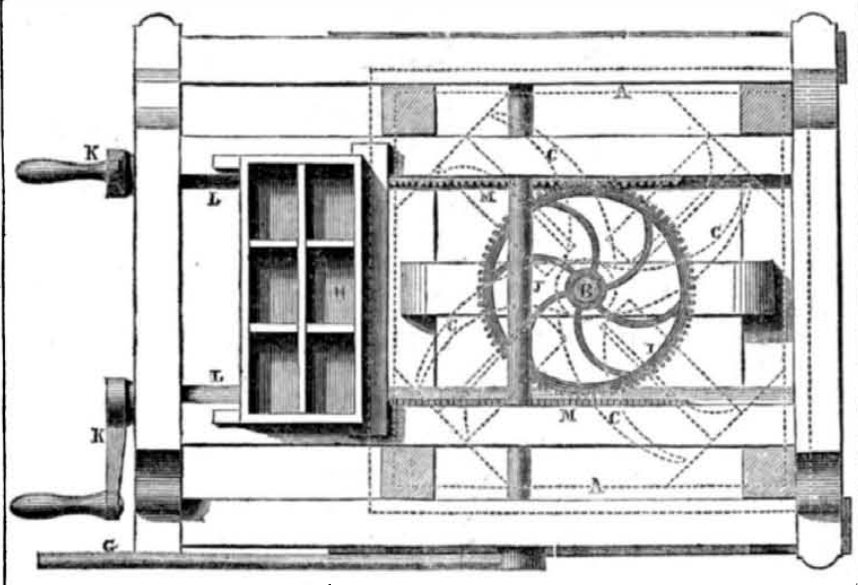
The accompanying engravings illustrate the improvements on Presses for Making Brick, which was patented on the 19th day of last August, by the inventor, Mr. Richard Long, of Columbus, Franklin Co., Ohio.

Figure 1 is a vertical section, and figure 2 is a plan view, partly in section. The same letters refer to like parts.

A is the box or receptacle, into which the clay and sand to make the brick are placed. Through the centre of this box passes the shaft, B. It has revolving blades or arms, C C, on it: the upper arms are curved, and the lower radial, as represented by the dotted lines, fig; 2; these cut up and mix the clay, and the lower ones scrape close on the bottom of the box, and feed the tempered clay through slits or rectangular openings, D D, into the moulds, H, for forming the bricks. When the moulds are filled up, a slide cutter, E, having a rack on its bottom, is moved in by a lever, G, which operates the rack sector, F, that takes into the rack of the slide, and this cuts off the clay and communication between the moulds, H, and the clay in the box, A, and then the moulds can be drawn out, and the moulded bricks carried away. When another set of moulds are placed in the carriage and pushed in, the slide, E, is moved out by the lever, G, and communication is opened between the moulds and the box, A, and the clay is then forced down into the moulds through the openings, D D, by the revolving arms, C C.

On the lower end of the shaft, B, there is a cog wheel, I, which takes into two distinct racks, M M; each rack is secured on a spindle, L, and each has a crank handle, K, as shown in fig. 2. The spindles, L L, are secured into the ends of the mould carriage, and by the cog wheel, I, taking into one rack

Figure 2.



on the one side, and the other on the other side, alternately, the mould carriage or frame is moved out and in. By turning the upper crank handle, K, to its present vertical position, as represented in fig. 2, the upper rack is geared with the cog-wheel, I, and the mould frame, with the moulds, are beginning to move in. When the moulds have moved into their exact position, viz., directly under the slits, D D, the mould carriage stops. It is stopped by a strong spring, which, pressing upon a projection (not shown) on the inner end of the rack rod, L, throws the said rack out of gear, with the wheel, I, and the mould carriage with the moulds, stands still, and when they are filled, the lower handle, K, is turned to the one side, and the other rack is made to gear into the cog wheel, when the mould carriage, with the full moulds moves out, and when out, to its proper place, a spring like the one described before, acts on this rack also, throwing it out of gear and thus stops the carriage at the exact place for it to do so. The attendant only turns the handles, K K, alternately to one side, to gear the racks, M, with the large wheel. The shaft, B, is driven by horse, water, or steam power, and is kept continually revolving. The whole construction and operations of this Brick Press are exceedingly simple, and, we believe, will be easily understood by the figures here presented, and the description given.

This machine is considerably improved since the patent was granted, it is more simple, therefore it can be made cheaper, will be easier kept in repair, and consequently it is more efficient and superior in every respect to what it was. It is a very compact and simple brick press, and is well worthy of the attention of the proprietors of small brick yards, as it is well adapted to be worked by horse power.

More information may be obtained by letter addressed to the inventor and patentee, as above directed.

Cures for Sore Throats.

Dr. Cornell publishes articles in the Boston Medical Journal, respecting the use of inhaling a powder for sore throats, &c. In March, 1848 he says, Dr. T. K. Chambers, of London, published in the London Lancet, and also in the Medical Gazette, an account of his use of an inhaling powder; and giving its composition. I immediately had some of it prepared according to his formula, which is as follows:—

"The plan is, the inhalation of a light innocuous powder, which may carry with it the required substance, either diffused in the air or absorbed in its pores. That which I have found well suited to the purpose is the pollen of the lycopodium, or club-moss, which has been made to imbibe as much as it would take up of a saturated solution of nitrate of silver, or of sulphate of copper, or of the two combined, and then carefully dried, and reduced again to an impalpable powder.

I have found this powder serviceable in several cases of bronchitis, laryngitis, ulcerated sore throat, inflammation of the mucous follicles, and in incipient phthisis. It is much preferable prepared as here directed, to that mixed with sugar, as the real pulverized nitrate was then used; but, as here prepared, the nitrate is first dissolved in pure water, then the 'pollen of the moss' is dipped in a saturated solution (or that of any other strength desired,) then dried, and finely pulverized. It can be made of any desirable strength, and and should contain less of the nitrate than that made from a saturated solution, when employed with very irritable patients.

A small quantity, say three or four grains, of the powder, is put into the receiver of the inhaler, the inhaler is then placed in the mouth of the patient, as far back upon the tongue as can be conveniently borne; then held by the lips, or left hand of the patient, while with the right hand the receiver is twirled round to scatter the powder, and, by a full inspiration at the same time it is conveyed into the throat. This process may be repeated once a day, or more frequently if desirable. If the solution is used, the shower syringe is altogether more convenient and easy of application, and agreeable both to practioner and patient, and does the work much more thoroughly, than the probang.

I have also made trial of the zinc, copper, alum, and some other astringments, prepared in the same way; but I think the nitrate for, general use, is preferable to any other. Though the sulphate of copper, in some cases, has been as servicable, and I have thought, even more so, in syphilitic sore throat.

In a class of diseases which have so very generally resulted in death, it seems to claim the attention of medical men, and deserves a a fair and thorough trial.

It requires great care to make this powder in a proper manner, and the inhaler should be such as will easily convey it into the air tubes."

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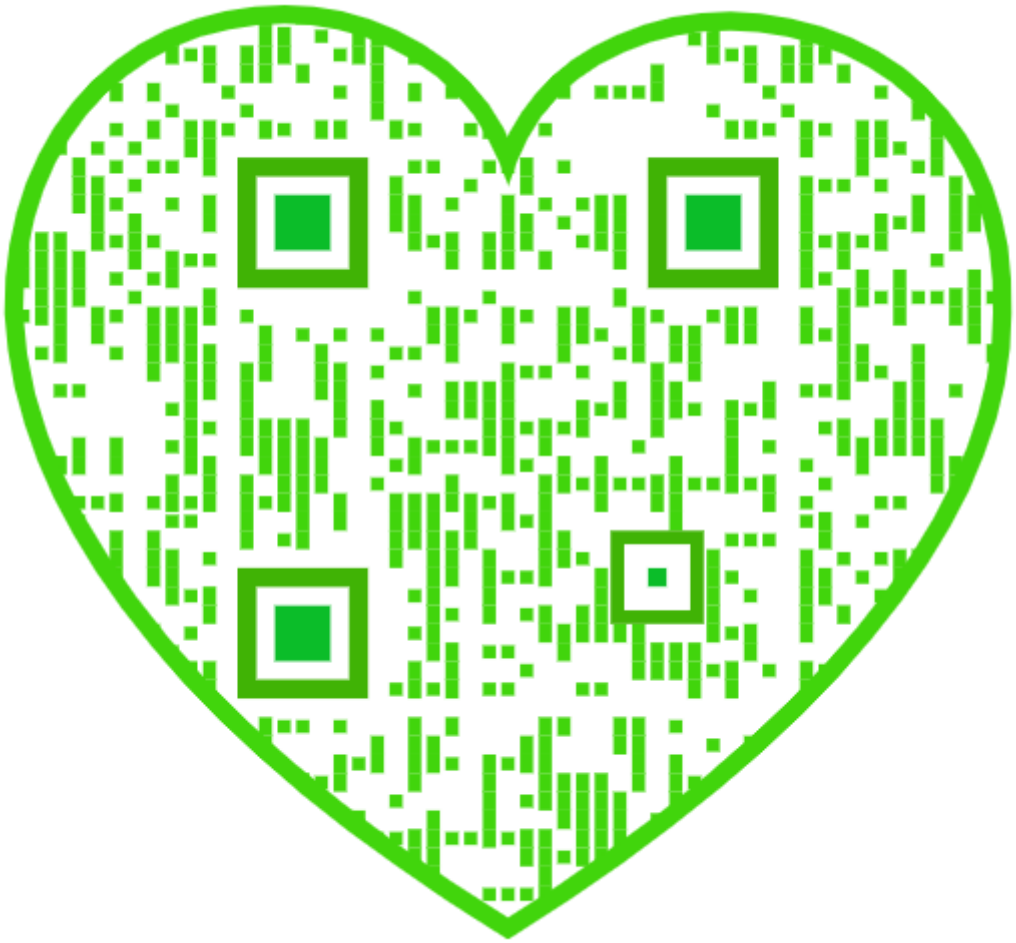

MISCELLANEOUS.

Vault Interments---Curious Facts.

During the years 1849 and 1850, Mr. Waller Lewis had been employed, under the direction of the General Board of Health, in London, in making chemical examinations of the gases resulting from the decomposition of bodies in the vaults and catacombs. An article written by him, in the London Chemist, of last month, gives some account of his researches, which are the more interesting, as the results are contrary to opinions generally entertained even by chemists.

He visited the vaults of the principal churches of London, noted the external appearance of more than 32,000 coffins and the contents of nearly a hundred, and several times tested or analysed the atmosphere of the vaults.

In no case did he discover the slightest trace of cyanogen, hydrocyanic acid, or phosphoretted, sulphurretted, or carburetted hydrogen, except a very minute quantity of sulphuretted hydrogen in the air of a single vault which contained but a few coffins. The corroded parts of old leaden coffins, were always found to be carbonate of lead, with no trace of sulphate or sulphuret. Some of the coffins contained ammoniacal gas in large quantities, and others none at all; but, with this exception, the contained air was nearly alike in all, being composed of nitrogen, carbonic acid, common air, and animal matter in suspension, When ammonia was present, it overcame every other odor; when absent, the smell resembled that of very putrid moist cheese. The result was the same, whether the interment had been made a few weeks or a century and a half previously, and whatever the cause of the decease, or the age at which it took place.

Out of all the coffins examined, but twenty of the leaden ones had been bulged by the pressure of the gases generated in the interior. This is only about one out of a thousand, and shows that the gases are formed very slowly. In leaden coffins the entire decomposition of the flesh required from fifty to one hundred years, but in wood, only two to five years. Mr. Lewis, besides his own investigations, made diligent enquiries of all the clergy, churchwardens, sextons and undertakers in every parish, and could not ascertain that a coffin had ever been known to burst suddenly from the pressure of the confined air. When one becomes bulged, or, as the sextons say, "blown," it is customary to make a small aperture in it, to which a torch is applied as an antidote to the noxious effects of the escaping gases. Several persons, whom Mr. Lewis consulted, had heard of cases in which the gases caught fire, but after searching inquiry, he could not find one who had ever seen them burn.

Mr. Lewis's experiments were confined to vaults and catacombs, where the process of decomposition goes on under very different circumstances from those that attend open exposures or interments in the ground, and it is only concerning them that we can draw our inferences—which are, that the deleterious emanations that haunt these depositories may continue for a hundred years after they are closed; they are not rendered noxious by poisonous gases generated during the process of decomposition, but by the animal matter itself, with which, if ventilation is not allowed, the air finally becomes saturated; that nitrogen and carbonic acid holding animal matter in suspension, steadily, but quietly, make their way through the pores of lead coffins, and, by some means, to the open air, so that, at the end of fifty or a hundred years, nothing remains but a few dry bones, though the coffins are still sound and unruptured. What their effect upon the living constitution is, Mr. Lewis sufficiently experienced in his own person. First, upon exposure, came nausea and vomiting, then diarrhœa, and the next day throbbing pain in the upper part of the head, great prostration, utter loss of appetite, and an unpleasant earthy taste in the mouth. After continuing his investigations for a long time, he was attacked by a series of biles, followed by erysipelas.

Telegraphs.

One of the conductors of the Southern Michigan Road is a telegrapher, and always carries a telegraph instrument and battery in the cars with him. When an accident occurs, or any derangement in meeting a train that should meet at a certain time, he throws a piece of wire up to the wire on the telegraph line on that route, sits in the cars, and inquires the particulars, or gives information to any depot on the route. To rig the machine does not occupy three minutes. So says the Detroit Tribune.

Railroad Accidents---To Legislatures.

We call upon the Legislatures of the various States to refuse new charters for new railroads, excepting upon the condition, that each railroad construct a double track. We believe that such a policy would greatly reduce the number of railroad accidents, which we regret to have to say are now very frequent. A few weeks ago no less than three trains ran into one another, in succession during short intervals of time on the Hudson River Railroad. On Friday last week, a passenger and freight train ran into one another on the New York and Erie Railroad, whereby two persons were severely hurt, and perhaps by this time they are no more. We have been informed that on this same road, ten locomotives were smashed in ten days by collisions. Such things would not have happened if there had been two tracks. The great majority of our railroads have but single tracks; they are signalized for accidents, as there are so many liabilities to err by the conductors and engineers. Signals are not seen, the switch is not turned right, or some delay has happened to one train, and another must come up and run it down. It is really fearful to think of so many railroad accidents. Our suggestions, we hope, will meet with attention.

We have more than once recommended every railroad to use a telegraph exclusively for the conductors. We thought the New York and Erie Railroad had one; we know it was intended to have one last year.

In England, last year, only 11 persons were killed and 142 injured out of 38,000,000 being carried over the railroads, that is the number killed and wounded beyond their own control. It will be a happy time for our land when our railways will become as safe. Our railroad engineers are seldom to blame in cases of accidents; they have everything to lose, and the risk of life more prominent than all others, consequently they endeavor to avoid accidents.

The way in which our roads are managed, rather *the system*, is at the root of the evil,—cheaply constructed roads, and the management of them at the least expense, are the first objects; well this is correct policy, but they are often managed by a prodigal economy at a most exorbitant outlay. Some people leap over sheaves to gather straws.

Kossuth.

This great man has been in our city for two weeks, and during that time he has made more *speeches* than any man we ever heard of, in the same time. He has addressed all kinds of deputations and all kinds of people and classes—ladies, lawyers, clergymen, soldiers, mechanics, merchants, and editors. In every address he presented new ideas. He seems to have a mind rich with the choicest selections of history, law, science, and art. He is a most extraordinary man. If he could speak English as freely as his native tongue, he would carry all our people with him like a tempest; as it is, he carries all after him.

He will soon be in Washington, and we shall see what will come out of his visit to that place. He is a fair, even down man; he tells plainly what he wants; he does not manœuvre—he is too honest for that. Since he has been in our city, he has been run down by thousands, and many have made great fools of themselves, and these generally among what are called the "upper classes,"—some wanting a kiss, others his autograph, others a lock of hair, and so on. We think that some of our societies have exhibited but little prudence in the matter. The funds are pouring in to help the Hungarians to commence the struggle, but so far as the doctrines of non-intervention, or intervention is concerned, Russia will not care much whether we adopt them or not. She has more to lose by Hungary's becoming a Republic than by a war with any power, and Nicholas is not the man to act blindly to his own interests.

Exciting News from Europe.

The R. M. Steamer Europa arrived at Halifax on last Saturday, having been obliged to put in there for coal. She had experienced very heavy weather. By her we are informed that a revolution was precipitated in Paris, not on the part of those termed Red Republicans, but on the part of the President Louis Napoleon. He had forcibly dissolved the Assembly, and committed many of its members to prison. He has proved himself to be a traitor, having violated the Constitution he had sworn to support, and had overawed the people's Representatives by cannon and bayonet. We do not know what intrigues were going on against him; perhaps he is merely the successful traitor—others, it is said, intended to impeach and imprison him. It is very evident that the French people are not in a state to carry on a government like that of the United States. No Republic can exist apart from a religious virtuous people.

Linen Washing in California.

It seems that the Chinese in California are the regular washerwomen of that golden land. A writer in the Marysville Herald, gives the following description of the Chinese laundry:

About ten o'clock last evening we stepped into a pretty extensive laundry on High street, carried on by Celestials. At the very first glance we were impressed with the order and system observable in the establishment.—Those who were at work greeted us with a "chin-chin" as we entered, and kept on with their work. A grave looking Celestial sat at a table a great deal like pine, inditing a letter to a San Francisco correspondent. From a glance at the letter, we thought there was considerable character in it. Still another Celestial drew a bench towards the table, and kindly motioned us to a seat. He had, of course, a shaved head—and thereby hangs a tail.

We subsided into the seat, or rather upon it, and took a general survey. What a truly industrious people they are. At work cheerfully and briskly, at ten o'clock. Huge piles of linen and under-clothing disposed in baskets around the room near the different ironers. Those at work dampening and ironing—peculiar processes, both. A bowl of water is standing at the ironer's side, as in ordinary laundries, but used very differently; instead of dipping the fingers in the water and then snapping them over the clothes, the operator puts his head in the bowl, fills his mouth with water, and then blows so that the water comes from his mouth in a mist, resembling the emission of steam from an escape pipe, at the same time so directing his head that this mist is scattered all over the piece he is about to iron; he then seizes his flat iron. This invention beats the "Yankees" all to fits. It is a vessel resembling a small, deep, metallic wash basin, having a highly polished flat bottom, and a fire of charcoal continually burning in it. Thus they "keep the iron hot," without running to a fire every five minutes, and spitting on the iron to ascertain by the "sizzle" if it be ready to use. This ironing machine has a long handle, and is propelled without danger of burning the finger by the slipping ot the "ironing rag." Ladies who use the ordinary flat iron will appreciate the improvement.

Hats.

Since Kossuth came to New York, the Kossuth hat has become quite fashionable. This is a low crowned hat with a small black ostrich feather stuck at the one side. Our people appear to go things by excitement, but really this hat is a very sensible excitement, for the "Kossuth hat" is a decided useful improvement upon the *hard shelled* silk hats which are now generally worn.

The common silk hats have what are termed *felt bodies*. These are made of felted wool, are soft and pliable, and allow the gas to pass from the head to escape freely. This is the Kossuth hat. To make it a common silk hat, this felt body is saturated with lac varnish and a covering ot silk plush is ironed down on it and smoothed up to shine like a mirror. This hat, the common sober hat, is then hard as sheet iron, and quite as stiff; it greatly resembles a little pot, and in warm weather it most effectually prevents the evaporation of the pate. It causes headache, makes the hair to decay early, and is a most uncomfortable head appendage. We hope its days are ended in principle; oldish people of a sedate turn, although they would prefer the "Kossuth hat," do not like to adopt it just yet, from a prudential fear of being conspicuous. This is our feeling exactly upon the subject, we like the black felt "Kossuth hat" baring the little feather, (that may do very well for a military man) and we hope to see it come into such general use as will warrant us in doffing the *hard shelled* silk head kettle.—There never was a more ungraceful head gear, than that of the common hat.

We are indebted to Mr. Gardissal, our gentlemanly Paris agent, for a voluminous catalogue of the products of France exhibited at the great London Fair, also for a copy of the annual industry of France for 1851.

Jamaica and Bread.

An establishment for baking bread and biscuit, employing steam, has been erected in this island, and is in successful operation. The United States has uniformly exported large quantities of biscuit to Jamaica. The flour in use on the island is partially obtained from Canada, so that even in this respect we have a competitor.

The Blue Ridge Tunnel, in Virginia, will be 4,200 feet long, and about 800 feet have been penetrated. The rock is of the hardest kind, being solid trap or green stone, with veins of flint—and the work is progressing at the rate of about 100 feet per month from the two ends of the mountain.

We hope that the speeches of Kossuth—both those delivered here and in England will be published in one volume by some enterprising publisher. It will be one of the richest gifts ever made to English literature.

Mr. Editor—Can you or any of your subscribers give me information in relation to the Mulley Saw, so called, as to its efficiency and durability, or who has its agency and erection. Is there any practically useful patent which, by a self-adjustment, will save the time usually lost by the separate doggings, &c., of the logs by the old process. Wm. H. R.

New York, Dec. 20, 1851.

The notorious gas contract has been, against all honor, justice, and the will of the majority of the citizens of New York, passed by both boards of the Aldermanic Council, and it now awaits the signature of the Mayor to become a law.

A New Telegraph.

A new Telegraph is reported by foreign papers to be soon adopted on a line between London and Liverpool. It is stated to be magnetic entirely, and requires no batteries. This will be a grand improvement, if true, but we do not think it is. A great number of new telegraphs have been patented in England within two years, not one of which, we believe, has been adopted.

Speed of the Magnet Current.

A long experience of the coast survey with some dozen different lines of telegraph, establishes the fact that the velocity of the galvanic current is about fifteen thousand four hundred miles per second. The time of transit between Boston and Bangor was recently measured, and the result was that the time occupied in the transmission was one sixteen-thousandth of a second, and the velocity of the rate of sixteen thousand miles per second, which is about six hundred miles per second more than the average of other experiments. If it is desirable, the Yankee can be found who will make an effort to improve upon this speed.—[Boston Journal.

[This must be slow electricity, tor it has long ago been held to be a fact, by electrical philosophers, that the effects of an electric current would appear at a distance of 576,000 miles in one second; and, after all, it cannot truly be said that the velocity of electricity has ever been truly measured—approximation is all that can be claimed.

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[For the Scientific American.]

Another Fire Annihilator.

As Fire Annihilators are now "all the go," it occurs to me that I ought to give the public the advantage of a hint—a rather broad one, too—that I received some years ago. I had occasion to make a large quantity of a certain tincture. I used a three gallon glass jar, which was nearly full of *absolute* alcohol, and a very inflammable gum. The weather being cool, I thought of warming the jar to hasten the process, and for this purpose placed it in a basin of hot water. This produced expansion of the bottom of the jar too suddenly, and it broke, letting the strong spirits flow over the floor. The whole room was occupied on every side with bundles of papers, and loose newspapers and other combustibles, were scattered in *literary* confusion over the floor. The room was a back one, under a bank, with no access or egress except a door entering into a front room that opened into a street. The spirits, in a moment, spread to the fire-place, and, of course, instantly were in flames. In less than a minute all the combustibles were on fire, and the room was full of the vapor evolved from the spirits. I could not breathe in the room, but had the presence of mind to remain silent. I ran to the door to get fresh air, and then into the flames, endeavoring to quench them, all to no purpose. At last, when all the bundles of papers, and other combustibles, had caught fire, and I was on the point of giving the alarm, I happened to notice a box of *air-slacked lime* that had been for some time in one corner of the room. I took a handful and scattered it on the flames, and saw, to my great delight, that it instantly quenched the flames where it reached them; I then took a shovel and scattered the lime freely over the burning papers and spirits on the floor, and in less than a minute this fearfully threatening conflagration was "annihilated," and I went into the street to get breath, breathing, you may be sure, more freely than when in the flames. Before resorting to the lime I had tried, in vain, all sorts of smothering expedients, and while at work with the lime, had to run to the door for breath several times, as breathing in the room was impossible. Since that time I have often thought of this incident. I have inquired of my scientific books for a reason for the quenching of the flames so promptly by the slacked lime, but can find none. I suppose there was a bushel of the lime, soft and powdery as the finest hair powder, and when a small shovelful was thrown into the flames, broad-cast, it was light and dusty. The effect upon the flames was wonderful. The instant the powdery lime came in contact with the flames they were quenched. I am even yet, at this distant day, incapable of depicting my fright. The nature of the contents of the room, the quantity of strong spirits that covered the floor, all in flames, a banking house above me, all I had in the world in the room on fire,—the fright, you may judge, was awful; the relief most providential and heart cheering. That hazardous but accidental experiment has given me more confidence in a bushel of air-slacked lime than in all the "Phillips' Annihilators" of England and America put together. G. B. S.

Baltimore, Md., 1851.

A Machine.

What is a machine? A contrivance by man to increase his power over matter. If the power of man, then, to subdue matter be a good, the increase of that power must be a greater good, and its ultimate perfection the greatest of all good in that respect. The mind may conceive the grandest projects for human improvement, but the hand alone can execute them. There have been thousands of instances of this kind which the world has never known, and which must have died away in the brain that conceived them. One of the principal causes of man's advancing so slowly in the path of amelioration, has been the incapacity of the hand to execute the conceptions of the head; the nearer the power of the hand approximates to that of the head, the more rapid will be his advance. Man is the creature of machinery in a civilized state; deprive him of it, and he instantly becomes helpless and unprotected. "Man himself is a magnificent machine, and God his Creator," says the pious and eloquent Dr. Barrow, "is the first of mechanicians." Look at the form of man, either in repose or activity, and you cannot but admire its beauty. What a majestic pile is his bony construction—how ingeniously devised, and how exquisitely formed—how true in principle and how admirable in practice.

Recent Foreign Inventions.

Sugar.—Messrs. Robert and John Oxland, chemists, of Plymouth, Eng., recently secured a patent for improvements in manufacturing sugar. They claimed the use of the acetate of alumina for purifying and refining sugar, in a patent secured in 1849, the alumina so employed being removed by the use of lime. They have found, however, that the whole of the alumina is not removable, by this means, from the solution, but that both it and the molasses contain alumina; they therefore recommend the addition of a solution of superphosphate of alumina, or superphosphate of lime to the syrup, in all cases in which the acetate of alumina has been employed; the syrup is boiled for two or three minutes, and the excess of acid neutralized by addition of either aluminate of lime, saccharate of lime, lime-water, or milk of lime. Instead of acetate of alumina alone, or in combination with phosphoric acid, phosphates may be used to produce the same effect; their employment also is attended with the additional advantage, that the re-agent used is not left in solution in the saccharine solution.

If, for instance, it be desired to treat saccharine liquids, such as an ordinary solution of Muscovado sugar, the following process is to be adopted:—The sugar being dissolved as usual, in the blow-up pan, no blood is added, but a soluble phosphate is dissolved in the water used for the solution of the sugar. One and a-half pounds of crystallized phosphate of soda will usually be found to be a suitable proportion of one ton of sugar. The syrup thus formed is brought to the boiling point, and a sufficient quantity of either saccharate of lime, milk of lime, lime-water, or aluminate of lime, is added to neutralize any acidity which may be present, after which the syrup having been brought to the density of 25° to 30° Beaume, is passed through bag-filters of the ordinary make, and is thus defecated. Water is then put through the filters to dissolve out all the saccharine matter left thereon, and the solution is employed to dissolve the next batch of sugar operated upon. The syrup, as thus obtained, may be either at once placed in the vacuum pan, or be first treated with a solution of from five to eight per cent. or more of hydrate of alumina (dried at 212°), which being diffused through it, will effect the removal of some coloring matter remaining after the previous process, and thus render the use of animal charcoal unnecessary.

The alumina, mixed with the other residue in the filter-bags, may be separated therefrom by ignition, and the product applied to the preparation of hydrate of alumina or of superphosphate of alumina, or when well washed, it may be mixed with fresh hydrate of alumina, and used in that state.

In the application of superphosphate of alumina to the purposes herein specified, this salt is added to the water used in the blow-up pan, in the proportion of about six pounds of alumina dissolved in phosphoric acid, for each ton of sugar. In bringing the syrup at a density of from 25 to 30 degrees Beaume, to the boiling point, a sufficient quantity of either aluminate of lime, saccharate of lime, milk of lime, or lime-water is added, as will serve to neutralize the excess of acid, after which the process is conducted as before described, and the alumina again recovered from the contents of the filter-bags.

The patentees give the following directions for the preparation of the phosphoric acid employed in the manufacture of the superphosphate of alumina above-mentioned:—Bones are first calcined to whiteness, then ground and digested in such a quantity of muriatic acid as will serve to dissolve out the carbonate of lime only; the residue is then washed and dried, and a sufficient quantity of water added to form a thin paste; sulphuric acid is then added in such proportion as will dissolve about ninety-seven per cent. of the lime of the phosphate. This mixture is well stirred, and kept at a temperature of about 90° Fah. for twenty-four hours, after which it is lixiviated with water. The first product gives a strong solution of phosphoric acid, and is employed for dissolving the alumina, whilst the subsequent washings are reserved for the lixiviation of fresh batches. By the action of phosphoric acid on alumina, an insoluble phosphate of alumina is obtained; to this solt, just as much phosphoric acid is added as will suffice to dissolve it, after which it is filtered off for use.

The aluminate of lime is made by dissolving alumina in a solution of caustic potash or soda, and precipitating with lime-water or milk of lime; the aluminate of lime thus obtained is well washed, and when used is diffused through water.

In the treatment of sugar direct from the cane, the solution is first defecated with aluminate of lime, or lime rendered acid by means of superphosphate of alumina or superphosphate of lime, and after two filtrations, the solution is brought to a density of from 25° to 30° Beaume, and then treated with phosphate of soda, as in the case above-mentioned, and boiled down in the usual way. The patentees give the preference to aluminate of lime over saccharate of lime, lime-water, and milk of lime.

Smelting Ores.—Mr. Wm. Longmaid, of London, recently took out a patent for the smelting of ores, &c., and he received the Council Medal at the Great Exhibition. The present improvements are principally based on certain previously patented processes of his for obtaining copper and silver, and for the manufacture of alkali, by the calcination and decomposition with common salt of iron pyrites and other ores and minerals containing sulphur: they have also relation to a method of employing anthracite coal in the production of iron from the oxide thereof.

The first improvement specified consists in the application of coke and anthracite coal in the decomposition of ores or minerals, by calcining them in mixture with common salt. When using coke for this purpose, the patentee prefers to employ a furnace closed by a door, and to supply the ashpit thereof with water, which, by becoming converted to vapor, rises and facilitates the combustion of the fuel. When employing anthracite, it is mixed with about one-sixth part of coking bituminous coal, and, being placed in front of the furnace on a plate for that purpose, is partially converted into coke before being supplied to the furnace. In this case, also, the ashpit of the furnace is supplied with water. The condensation of the volatile products resulting from these operations will be found to be much facilitated, and the working of the processes generally improved by introducing steam into the flue leading from the furnace to the condenser.

The second part of the invention consists of an improved method of effecting the precipitation from their solution of the salts of silver and copper, which are resulting products of all the operations of decomposing ores and minerals containing them by calcination with common salt. The process of calcination is conducted according to the directions given in previous specifications, and a solution of alkaline salts employed to dissolve the silver and copper and other products from the calcined mass. In order to separate the silver, the patentee causes the solutions to pass through vessels containing metallic copper, by which the silver is precipitated, an equivalent of metallic copper being dissolved at the same time. When the whole of the silver is precipitated, the copper is obtained by metallic iron in the usual manner. The alkaline solution is subsequently employed in the manufacture of sulphate of soda, or to disssolve fresh quantities of silver and copper.

The third improvement has relation to the manufacture of sulphate of copper from the sulphide thereof, and consists in calcining the regulus or other sulphide obtained by such processes as are above alluded to, at a low temperature with access of atmospheric air, by which sulphate of copper and soluble salt of silver will be produced. These products are then dissolved in water, and crystals of sulphate of copper obtained after precipitating the silver by means of copper. The precipitate is treated in the usual manner to obtain the silver in a metallic state.

The fourth head of the invention consists in separating silver and copper from their solutions by means of the sulphide of calcium, alkali waste, and compounds of alkaline and metallic salts, such as "black" or "green ash," both of which are compounds resulting from the patentee's processes for the manufacture of alkali. These materials may be employed either in a pulverized state or in solution.—The residual products containing the precipitated silver and copper are fluxed and converted to regulus for subsequent operations.

The fifth part of the invention relates to the treatment of ores containing a large proportion of silver with little copper or sulphur. Solutions are obtained therefrom (by any ordinary processes), which, when dilated to about 30° Twaddle, and boiled, yield a deposit of chloride of silver in a metallic state.

The sixth branch of the invention consists in separating silver and copper from the regulus obtained from any of the above-mentioned processes by gradually calcining the same with from five to ten per cent. of common salt. The product is then treated with water to dissolve out the metallic salts, which will precipitate, and may be collected and smelted in the usual way.

The last improvement consists in obtaining iron from the oxide thereof by mixing the same in a granulated state with carbonaceous matters in sufficient quantity to deoxodize it, and with clay enough to provide for its being made into balls, which, when smelted in a reverberatory furnace, yield iron of fine quality. The carbonaceous matter preferred for this purpose is anthracite coal or charcoal as free as possible from sulphur.

Stone Dressing.—We perceive that Mr. Charles Morey has secured a patent in London for a machine for dressing stone, which is similar to the one exhibited at the Fair in this city, in 1849. The cutters are broad chisels with serrated edges, and are placed in a direct line across the stone, but are inclined in the direction of the transverse of the table on which the stone is placed, which is similar to the bed of an iron planing machine. The chisels have a reciprocating motion, like planing a board. The stone moves forward slowly to the cutters. Another modification of the machine, is a series of rollers with serrated edges—the cutters having a rolling motion.

We are indebted to our invaluable exchanges, "Newton's Repertory of Arts," "Patent Journal," "Mechanics' Magazine," and other London Journals," and to the "Genie Industriel," &c., of Paris, for the above, in substance.

The Introduction of Coal into England.

When this fuel was first introduced into England the prejudice against it was so strong that the Commons petitioned the crown to prohibit the "noxious" fuel. A royal proclamation having failed to abate the growing nuisance, a commission was issued to ascertain who burned coal within the city and its neighborhood, and to punish them by fine for the first offence, and by demolition of their furnaces if they persisted in transgression. A law was at length passed making it a capital offense to burn coal in the city of London, and only permitting it to be used in the forges in the vicinity. Among the records in the Tower, Mr. Astle found a document importing that in the time of Edward I, a man had been tried, convicted, and executed for the crime of burning coal in London. It took three centuries to entirely efface this prejudice.

Sinking of a Tennessee Mountain.

It is stated that a short time since, a portion of Walden's Ridge sunk, with a noise resembling deep-toned thunder, leaving a huge gap in the timber that fringes the sides of the ridge, extending about two miles in a parallel direction with the top. The gap in the dense timber appeared to be about sixty or a hundred feet in width, and the fissure in the earth reached to an unknown depth, in which trees of the largest size were torn up, and enormous rocks, which had probably lain concealed for ages, were rent from their primitive beddings and laid bare. The foundation on which the mountain rests is supposed to have given way.

The Railroad up the Sixth Avenue has been commenced.

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NEW INVENTIONS.

Improvement in Power Loom Shuttles.

Mr. Charles A. Maxfield, of the city of Troy, N. Y., has taken measures to secure a patent for an improvement in the shuttles of power looms, which consists in certain simple devices which prevent the shuttle from entering the shuttle box whenever the weft thread is broken or exhausted, thereby causing the loom to protect itself from breakage, and its operation is stopped at the same time. By this invention Mr Maxfield dispenses with the "stop motion," now employed, and thereby simplifies the loom.

Colt's Pistols.

At the meeting of the Institution ot Civil Engineers, in London, on the 25th of Nov., Sir William Cubitt in the chair, a paper from Col. Samuel Colt, of the United States, on his revolving fire-arms, was read and highly applauded, as it was the first communication received from America. The paper went over the whole history of improvements in revolving-breech fire-arms. It appears that early efforts had been made to produce fire-arms capable of rapidly firing several times without the delay of loading after each discharge.—Drawings of a number of these were exhibited. Among old matchlock guns, some of them had eight chambers, rotating by hand; some stone wheel locks had also eight rotating chambers, and one of these, made in the seventeenth century, had the peculiarity of igniting the charge close behind the bullet, in the same way as that of the Prussian Needle Gun. In the United Service Museum there was a brass model of a pistol of the time of Charles II., the chamber of which was made to rotate by mechanical devices nearly similar, but more complicated than that ot Colt's pistol. The inventor of "Nock's Patent Breech," and the Rev. Mr. Forsyth's percussion gun, were essential to the safe construction of repeating fire-arms.

The manufacturing of fire-arms, Colt's pistols, as well as other fire-arms, is done in quite a different manner in America from what it is in England. In England the greatest number of all the parts of a gun are made by hand; in America they are made by machinery. The advantages of the latter mode are great, for the lock of one pistol, or any one part of a pistol, will fit the same part of another like pistol equally well. Thus, if one part gets broken, the fragments can be taken out and a new entire piece purchased to fit the place and perform the offices of the injured part exactly. Only ten per cent. of Colt's fire-arms are made by hand labor. The accuracy of Colt's pistols was fully proven in England by experiments, for at Woolwich, men unaccustomed to the use of the said pistols, attained to great precision, and with a small belt pistol, at a distance of fifty yards, out of 48 shots, 25 bullets took effect within one foot square, and 13 ot them hit the bull's eye, which was 6 inches in diameter; all the shots struck the target.

Mott's Improved Roadway.

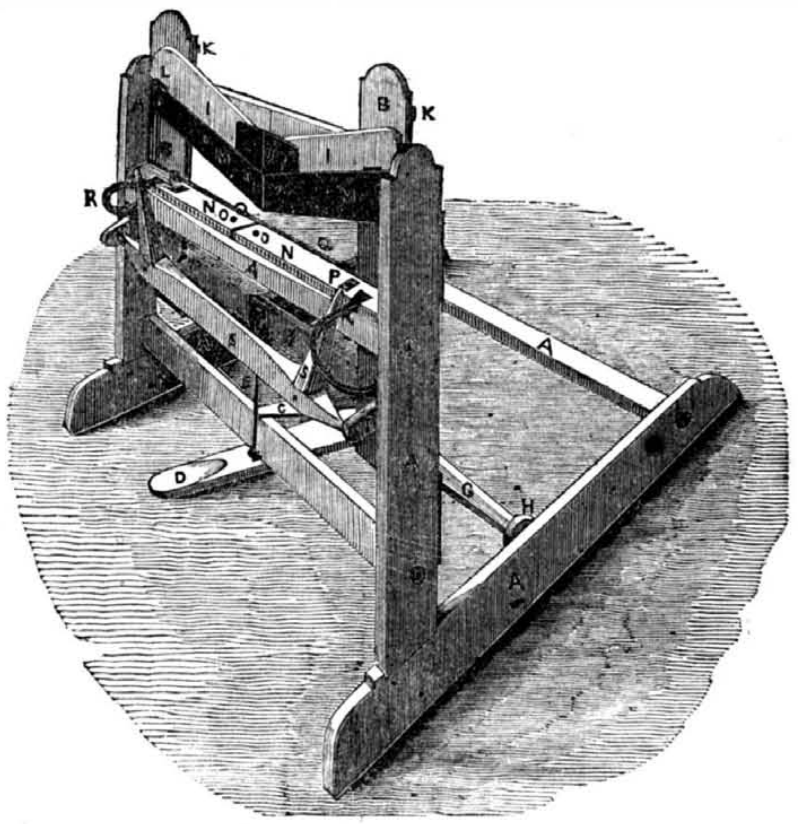
Mr. Jordan L. Mott, the well known inventor of Mott Haven, N. Y., has sent us a copy of his patent for improvements in roadways. The object of the invention is to make the rails or roadways for streets, so that they shall be equally adapted to the running of railroad cars having flanched wheels, as to common carts, drays, &c. The invention consists in making the rails each with a curved or trough-like projection, outward and downward from the upper and outer edge of which projections the roadway is to be paved. The said projections of the rail being a gradual curve or inclined plane from the upper edge of the rail, that the wheels of common carriages may pass over the rail with facility, and when running thereon may have a tendency by reason of the inclined or curved face and the weight of the carriage to descend from the rail, and thus at the same time keep the other wheel from the inner edge ot the other rail, if the gauge of the carriage be the same or nearly the same as that of the rails; and if it be of a wide gauge that the two wheels in running thereon may straddle the rails and run on the outside of both.

Saw for Cutting Curved Timber.

Mr. Ralph Steel, of Newcastle, Eng., has invented a saw capable of sawing timber into any shape for ships' use, either ship knees or ship timber of any description. The saw, at the same time that it is capable of cutting timber to any given shape, can also be applied to cutting straight.—[Worcester Transcript.

[There are a number of such saws in America. The best invention for sawing curved timber for ships, &c., ever introduced into Europe, we believe, is that of Mr. Cochran, of near this city. It was his machine which received such commendation from the British Admiralty a few years ago. We have seen it operate, and can speak confidently of its merits. Another capital machine for sawing curved or straight timber is that of Mr. Oliver Wright, of Rochester, N. Y., for which we had the pleasure of securing a patent, and which was illustrated on page 17, Vol. 5, Scientific American.

STAVE JOINTING MACHINE.

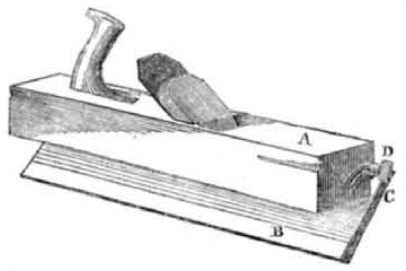


The accompanying engraving is a perspective view of the improved stave jointing machine of Mr. Daniel Drawbaugh, of Cedar Springs, (White Hill P. O.,) Cumberland Co., Pa., and which was patented on the 11th of last month, (Nov., 1851.)

A A A are the pieces forming a strong wooden main frame, which is portable and stands upon a floor. B B, are the pieces forming a strong wooden frame which is made to slide up and down, on cast-iron guides between the vertical posts of the main frame, by means of a spring, C' C, which is attached to the upper edge of a cross piece of the main frame at C, and to the under edge of the sliding frame at C. and a treadle, D, which connects with the sliding frame by means of a jointed iron rod, E, and plate, F. This treadle is connected with a cross piece, G, which works on journals, as fulcra let into blocks, H, which are secured to the insides of the sills of the main frame. On the front side and near the upper end of the sliding frame, B, are two adjustable pieces of hard wood, I I, connected by means of a thin, flexible iron plate, J. These pieces are secured to the sliding frame, so as to be adjustable to any angle required for the tapering ends of the stave by means of set screws, K K, and draw bolts, L L. There being also two like draw bolts through the plate, J, for securing the centre. Besides the obtuse angle at which the two pieces are adjustable in regard to each other, they are also permanently secured to the sliding frame by means of the same set screws and draw bolts, at another angle, so that the two connecting ends shall be several inches below the outside ends. To the lower sides of these two pieces, I I, the upper steel shearing knives, M M, are let in nearly flush with the pieces, I I, and secured thereto by screws. Upon the upper cross piece of the main frame, A, there are two adjustable pieces, N N, made of some hard wood secured to the cross piece, at their inner ends, by means of screws, O O, and at their outer ends by means of draw bolts, P P, the heads of which are let into a mortise so as to be flush on the top—the stems of the bolts passing through oblong holes in the pieces, N N, and are thus capable of being set to suit the angle of the upper knives, M M. On the edges of these two adjustable pieces, the lower steel knives, Q Q, are secured by screws, their cutting edges being level with the upper sides ot the pieces, N N. Near each outer end of the adjustable pieces, N N, there is permanently secured an iron guide, R R, which connects at its lower end by an adjustable screw, W, to the main frame. The cross piece upon which the pieces, N N, rest is slightly beveled on the upper side, or, the pieces, N N, are bevelled so that the latter may be adjusted by means of set screws, P P, and the guides, R R, to suite the radial bevel required on the edges of the stave, in accordance with the intended diameter of the barrel. In front and some distance below the bevelled pieces, N N, a revolving gauge, S S, is secured upon journals at the ends, in adjustable bearing pieces, T T, secured by a screw, V, and plate. The two projections on the upper side of this gauge, pass up a little above the guides, R R, and are placed each, so as to gauge the proper width of each end of the stave to be jointed. The mode of operation of this machine is as follows:—After the upper shearing knives, M M, are adjusted to suit the taper required on the stave, the lower shearing knives, Q Q, are adjusted to match them, and so that, upon the descent of the upper knives, shearing contact of the edges of the two sets of knives shall commence at the angle, U, and gradually extend towards each outer end, until their whole cutting edges have passed each other. In order to give the proper radial bevel to the edges of the stave, in accordance with the required diameter of the barrel, the bevelled pieces, N N, are also adjusted at the same time by means of the adjustable guides, R R, and screws, W, so as as to suit this required bevel. The machine being now ready for use, the workman takes one or more staves, and places them along on the pieces, N N, and with his hand on each end, brings them in contact with the upper projections of the movable gauge, holding the connections firmly, the staves are slidden along on the guides and pieces, N N, over the lower knives—his foot is then pressed down firmly and quickly upon the treadle, D, when the sliding frame and its knives are brought down, draw cutting or shearing the edges of the staves from their middle towards their ends. The staves are now reversed, and the opposite edges cut or jointed in the same manner.

The claim is for the adjustable knife with the adjustable rest. More information may be obtained by letter addressed to the patentee.

New Bevel Plane.



The accompanying engraving engraving is a perspective view of a new Plane for planing bevels, invented by Horace Metcalf, formerly of Corinth, Vt. We have here a common plane, A, attached to the plane stock is a guard, B, attached to the left side of the stock by hinges. This guard is made of a good piece of wood, and is rectangular, projecting below the sole of the plane, and is of the same length as the stock. The hinges are on the other side and not seen. To the front edge of the guard, B, is attached a strip of metal, C, with a sector slot in its upper part. Into this slot passes a thumb-screw, D, working in the front end of the plane stock. By this nut the guard can be set to any angle, so as to allow the plane to work any bevel according to the degrees in the slot, C. The stock is rabbetted to furnish a place for the hinges of the guard; this is not seen, but it can be easily understood, as the engraving renders it all very plain. The size of the plane which Mr. Metcalf uses, is 14 inches in ledgth, 3 1-8 in width at top, face 2 5-8 in width, depth of plane 2 3-4, thickness of guard 5-8ths of an inch, width of it 3 1-2 inches. The size may be varied. The metal parts connected with the guard, and for operating it, may be of brass or iron. The guard turns a quarter of a circle, the centre of which is the hinge of the guard, and the thumb-screw can set the guard at any part of the quadrant. This plane was designed principally for bevelling the edges of cornices, which are made generally of 1 inch, and 1¼ board; but it is useful for all other purposes, for making bevel edges. In using it, the board to be bevelled is placed upon the side of the bench, in the same manner as for jointing. The inside of the guard is placed against the side of the board next the workman, while the plane is canted over from him to the right.

Any communication relative to the pur chase of an interest will meet with attention, and should be addressed according to the above direction—to Corinth, Vt.

A New Metal.

A well is now being excavated in Jackson County, Florida, which, in the number of strata already passed through, is nearly as notable as the one so famous near Genoa. The first twenty or thirty feet is composed of sandy soil, common to that region. This is succeeded for an equal distance by a black, rich, vegetable loam. Beneath the loam is a deposite of trunks and branches of trees, in a semi-petrified state, and still further down, at the depth of sixty-five feet is struck a vein of metallic ore. A specimen of the ore is in the possession of the editor of the Floridan Whig, who says that it is very pure, and has the apperance of silver, but the hardness of platina. It is to be found in considerable quantities.—[Exchange.

[Is this a fact? we mean in respect to the *new ore*. The above account makes it out to be a new metal, which we do not at present believe.

Turbine Wheel at Fairmount.

A new turbine wheel has just been erected at the Fairmont Water Works, Philadelphia, by F. Graff, Esq., Superintendant. The wheel is cast-iron, but has wrought-iron buckets, and it runs horizontally in a cast-iron case. It is seven feet in diameter, and the buckets are about 10 by 14 inches each. The power required to raise the water is nearly 45 horse. The pump will raise 1,638,979 ale gallons per 24 hours, or 512,183 more than the best pump now in use at Fairmount.

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Scientific American

NEW-YORK, DECEMBER 27, 1851.

Great Experiment with the Fire Annihilator ---Excitement.

Public notices were given that a grand experiment with the Fire Annihilator would be made on the 18th inst. (last Thursday) at 61st st., this city, at 1 P. M. The handbills and advertisements stated that a house would be set on fire, and all that had been claimed for the "Annihilator," by Mr. Barnum and others interested, would be confirmed by the annihilator extinguishing the flames and saving the burning house. It is well known to our readers that this invention has caused great excitement in our country, and that the company which owns the patent is composed of very wealthy and what are termed "big men." Determined to be on the first step of the ladder, we purchased a copy of the patent specification, got up engravings of the drawings, and published them in No. 1, this volume, Scientific American. Having served as a fireman, and being not a little acquainted with the management of fires, also with the nature of the gases which extinguish flame, we took occasion, after a calm review of the matter, to say that we had no confidence in the general utility of the "Fire Annihilator."—Our language was moderate but decisive, nevertheless, being lovers of fair play, and being guided by the rule of honesty to confess wrong, when our error is demonstrated, we said in the article referred to, "we shall watch its progress and report its effects; if it proves all that some have said about it, we shall say so, when convinced by *occular demonstration.*" We were on the ground before the appointed hour. The house built for the experiment was a small frame building 20 feet square, placed in a field on an elevated position. It was a rough board cottage the main body of which was two stories high, and had a wing at each side. There was no bottom floor; the outside boards were placed vertically, with weather strips nailed on the seams. We were permitted to examine the building by the door keeper, before it was set on fire. In the middle of the main part there were about a dozen 12 feet boards, some scantling, &c., set up vertically through a hole in the floor—the only floor—of the second story. Shavings were stuck around and between the boards, which were placed quite wide apart, and the roof inside was plastered with lime, and not yet dry. A crowd of police were there, and a a chain was placed on stakes around the building, about ten feet from it. At half-past one o'clock, a gentleman came on the back roof, and requested all to retire outside as Mr. Phillips was going to set the building on fire. It was proposed that a committee should be appointed by the crowd to examine the building, witness the operation inside, and report. The committee was appointed, and consisted of Alfred Carson, our Chief Engineer, R. B. Coleman, John P. Lacour, Zophar Mills, Moses O. Allen, and Mr. Eichell. The following is their report:—

"First, The building was constructed of green spruce timber, and constructed in such a manner as would have been a difficult matter, under ordinary circumstances, to have got it fairly on fire.

Second, In our opinion Mr. Phillips had every opportunity afforded him to fairly test the experiment, and everything was in his favor.

Third, A slight fire was kindled inside the building, and the annihilator was almost instantly applied, before the fire got headway to any considerable extent—it partially extinguished it."

We would report further:—the wind was high and freezing, and if there was any virtue in the Annihilators, and the experiment fairly conducted, the character of the "Annihilator" would have been established forever. We counted twenty-one large annihilators, the price of each $35: if the shavings had been let alone, the fire would have gone out of itself, without the application of a single machine. The crowd, numbering thousands, was dissatisfied, numbers jumped over the chains ascended the roof, entered the windows, and exposed to the crowd the boards which had been set on fire and extinguished—they were not charred, some not colored with smoke. They then got a barrel of tar, piled up boards inside, and set the building truly on fire; for a long time this was difficult to do: we never saw boards so difficult to burn. When fairly on fire there was a good opportunity to try the effect of the Annihilator. Not one was applied,—the building burned to the ground. The crowd jeered and cheered, shouted "humbug," and "where's Barnum?" Mr. Phillips, we were told, commenced to apply the Annihilator against the request of the Committee, who thought it was not then fairly on fire. We were told that eight Annihilators were applied: we do not know how many were applied; we saw twenty-one full charged before the fire, besides a large box of charges, and 16 empty after it. When we examined the building we were satisfied that the experiment was not intended to be a fair one; two buckets of water could have done all the "Annihilators" did; still, we felt for Mr. Phillips; he was no doubt pained and mortified at the result, but a New York populace could not be satisfied with what he did; and wherewithall, if he had been a New York fireman, he would have managed his own invention much better.

We hope that none of our friends have lost anything by this invention; we early raised our warning voice, not that we were opposed to the owners or the invention, but because we deemed its scientific qualities of no practical utility for the purposes intended. The thousands assembled to witness the experiment, without perhaps a single exception, believed it to be an entire failure.

It was intended by the American Fire Annihilator Co. to make a fine speculation out of it. The private circular of the Annihilator Co, stated—"An end must be put at once to every serious conflgration in America;" it has not put an end to one: a poor wood frame house put an end to 21 Annihilators, at $35 each—total cost $735: and two buckets of water, costing 0, could have done as well. An agent for a machine was to have a profit of 66 3-8 per cent. One of the great advantages of this invention, says the circular, "will be the immediate reduction it must occasion in the rates of insurance." We have not heard of this having been done in a single case. None would have rejoiced more than we had this invention been a genuine "Fire Annihilator."

To Our Readers.

Next week will bring to a close the year eighten hundred and fifty-one. Many changes have taken place during the brief months and days of it that are gone. A great number of changes generally take place about the new year, and it is customary for fathers to present gifts to their sons, and employers to their apprentices. Last year we directed the attention of parents and employers who had sons and apprentices of a scientific and mechanical turn of mind, to make them presents of the Scientific American, such as by presenting them subscriptions for a year. We have reason to know that the recommendation was acted upon by many, and with gratifying results. No man can be intelligent now unless he peruses scientific periodicals. and no young man can grow up intelligent unless he makes science and art part of his studies.

This is also a very favorable time for persons to subscribe for the Scientific American. We can send all the numbers for the last quarter under one cover, and the new year cannot be commenced in a more becoming manner than by subscribing for a periodical that will present weekly, during 1852, all the improvements, inventions, and discoveries made in science and art. Nothing but useful and reliable information appears in our columns, and considering the character of our paper, the objects to which it is devoted, the great number of engravings we present in a year—about 400—it is perhaps the cheapest paper in the country.

During the year 1852, with the strength of Him who giveth blessings, we will continue to devote our energies to still greater improvements in our paper, and with our great and increasing experience we believe that the future of the Scientific American will be still more ably managed and edited than the past. We are determined it shall be so, and our friends we know trust a good deal in what we say. Those who can influence a friend and a neighbor to subscribe, have our thanks; the more subscribers we have, the more we expend to make our paper worthy of their support.—Upon this principle we have acted, do act, and will act. We hope our readers will enjoy a happy New Year.

Taste.

What is taste? This is a very difficult question to answer. It means something taken into the mouth, which conveys a pleasurable or a disagreeable sensation to the mind: this is physical taste, and yet, although some have called it "a natural quality" or sense, there is the strongest evidence on hand to the contrary. It is a very common saying, "there is no accounting for taste;" this is true in a wide sense, but it is no more true than to say "there is no accounting for habits." The fact is we can account for the manner in which many tastes are acquired, but why such and such tastes should be acquired—why people have a disposition, and, as it were, a fatuity to acquire them—is more than we can account for. Why is it that so many acquire a taste for chewing tobacco—a taste, which, when acquired, or become a habit, is like cutting off a right hand to part with? We should think it very singular to witness people chewing lime, but thousands of Hindoos do this. The natives of the arctic regions reject sugar with loathing, but train oil, candles, and soap, are luxuries to them. Our children like sugar candies, the children in the interior of Africa, use rock salt for sugar sticks. The Frenchman likes frogs, and the Chinese dogs and birdnest soup. Some acquire a morbid taste for clay and slate stones, others for opium and brandy. One man has complete control over his tastes, that is, if there is any thing for which he has a desire to eat or drink, and he is convinced that it would be injurious to him in any sense, he can calmly thrust the temptation to the one side, and feel happy at the sacrifice. Another man sacrifices reason, interest, and conviction to the gratification of his appetite, and seems to be led a miserable captive by this passion. Some would say, upon the system of reasoning employed by Liebig, in his Animal Chemistry, that "all this is easily accounted for, to support the equilibrium of the body, upon the principle that food is to the body what fuel is to the fire. The Esquimaux at the North requires a great amount of carbon to keep up the heat of his body in that cold region." This reasoning may answer with some, but although alcohol and tallow contain far less oxygen, still sugar contains a great deal of carbon, viz., 12C., 11H., 11O., (carbon, hydrogen, and oxygen). It is also well known that, in tropical countries much olive oil is used as food; in Israel "corn and oil" was common food, and it is so in Greece, Turkey, and Spain, and other nations, now. In Africa the natives eat twice as much food as Americans in general.

When a person is convinced that the use of any beverage or article of food is injurious to the system—and certainly it is no difficult matter to know this—he should deny himself the gratification or indulgence of his appetite at once. He should endeavor to make every passion subject to reason and moral principle; he who does not do this is not safe, and never can be a great nor a good man; he may be led away by the most absurd and foolish *taste* for something useless, loathsome, and destructive to health and happiness.

Dr. Lardner and Steam Navigation.

It has been commonly reported, and has almost become a proverb, to illustrate the opposition of learned men to the introduction of new improvements, that Dr. Lardner, at one time, said—"it was mechanically impossible for a steamship to cross the Atlantic." We were always skeptical about the truth of such an assertion, and we see that the learned gentleman, in his last edition of "The Steam Engine, Steam Navigation," &c., denies ever having made use of any such expression; nay, he says, that so far from ever having expressed himself in such language, he gave utterance to quite contrary opinions. This was at the meeting of the British Association at Bristol, England, in 1837. At that meeting the question of Atlantic Steam Navigation was discussed, and the language he used was the following: "He was aware that since the question had arisen, it had been stated that his own opinion was adverse to it. *This statement was totally wrong*, but he did feel that great caution should be used in the adoption of the means of carrying the project into effect—almost all depended on the first attempt, for a failure would *much retard* the ultimate consummation of the project,—he considered the voyage practicable." This was the Report of his speech in the London Times, and for that, it had been asserted that he declared a voyage across the Atlantic, a *mechanical* impossibility. It is wonderful how falsehoods originate, and how far they travel. This one has travelled a long distance. We like to see such things set in their true light—truth is paramount to everything.

Circular Saws.

A correspondent from Smithfield, Johnston Co., N. C., writes to bear testimony to the editorial remarks made on page 90, to our correspondent R. W. W., of Florida. He says that in Smithfield, Messrs. Ballinger & McCallers have two steam mills in which they use circular saws of 48 and 52 inches, which cut the best lumber he ever saw. and they never vary from a straight line. They saw through logs of various thicknesses, and never get warm. These saws are run by Mr. Wm. M. Perkinson, a practical man, who keeps clear of all evils, and who, he has no doubt, can instruct others. He has no theory to aid others, but what he can give in thorough practice.

Mr. D. B. Paine, of Paine's Hollow, N. Y., writes us that the best means for keeping circular saws from heating, is to keep them in first rate order, and give them from one to two thousand revolutions per minute.

We have received a great number of communications on circular saws, in answer to our request; we are much obliged to our readers for their kindness, and sincerely thank them. There are a great variety of opinions, however, and we have not room to publish them all. We should have liked it if we had received more definite information upon thorough practical points, such as the best velocity of saws of various sizes, cutting various kinds of wood; the power applied to drive them, and some minute particulars of management. Above all countries in the world, the United States is most interested in running saws, for there can be no doubt of the fact, we believe, that there are 100 saws running in the United States for one in any other country of a like population.

We will have something more to say about saws next week.

Consumption of Anthracite Coal.

We learn by the Philadelphia Ledger that a gentleman of experience in the coal business has been in this city (New York) for a week pursuing the inquiry of the consumption of anthracite coal in this great mart—the centre of coal consumption in America. It appears that all the United States coasting steamships, including the Chagres lines, use anthracite. The Collins line take anthracite out and Welsh and bituminous back. The Cunarders take Cumberland out, and Welsh back. The Havre steamers use bituminous, but the Franklin took anthracite to try it on her last voyage. The Nicaragua steamship company, have contracted for supplies of Scuylkill coal. C.H. Haswell, ex-U.S. Engineer puts down the number of ocean steamers, using anthracite, at 78; and 46 of these did not use it last year (1850). These consume 11 tons each daily on an average. The whole consumption of anthracite, is estimated by a gentleman intelligent in the coal business to be 822 tons per day, by Ocean steamers. All the river steamers except in the interior rivers, use anthracite. What a change; in 1838, all our steamers, here used wood, then we had no sea steamers. We are fast progressing to be mistress of the seas.

Gold of California.

The gold of California appears to be more plentiful than ever. The steamer Georgia arrived at this port on last Sabbath morning, bringing the astonishing amount of three million of dollars in gold dust.

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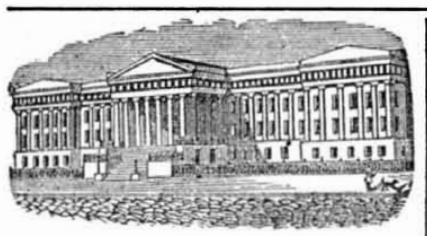

☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING DECEMBER 16, 1851.

To J. W. Drummond, of Skaneateles, N. Y., (assignor to Smith Ely, of New Brighton, N. Y., for improvement in Chair Seats.

I claim the above combination of the frame and web, being the mode of securing the web to the frame, as set forth, by glueing or cementing the web into a groove in the frame.

To Elisha, Charles, and Warren W. Dutcher, of North Bennington, Vt., for improvement in Weaver's Temples.

We claim the roller temple, constructed as set forth, the roller working in a concave, so that the cloth is held at that line of the periphery of the roller which is nearest the reed, at which time the roller is enabled to perform its duty with the greatest efficiency.

To R. M. Ferris, of New York City, for improvement in combining Organs with Pianofortes.

I do not claim combining the organ and pianoforte, irrespective of the manner in which the combination is formed; but I claim, first, the whole or any number of the tubes of an organ with a distinct set of keys, in combination with a pianoforte having its own proper set of keys, in such a manner that either the pianoforte or organ can be played separately, or both at the same time, by the two sets of keys, or both coupled and played by one set of keys, by means of either of two couplers and eccentric barsh, or other equivalent devices, substantially as described.

Second, coupling either or both the organ and piano with a pedal action, and uncoupling them from it, by means of couples acting on the keys and eccentric bars, or their equivalents, so that either the organ and pianoforte, or both, can be played upon by the pedals, substantially as set forth.

To G. L. Haussknecht, of New Haven, Ct., for improvement in Carriages.

I claim, first, the employment of segments C D, and fifth wheels F G (or parts corresponding thereto), attached as described; the one segment, D, and fifth wheel, F, working on pivots secured at points between the front and hind axle; such parts acting in combination with arms, constructed substantially as described, for coupling the movements of two axles, or their turning appurtenances, for the purposes set forth.

To H. W. Hayden, of Waterbury, Ct., for machinery for making Kettles and articles of like character from Discs of Metal.

I do not claim any of the gear wheels or pinions, nor their arrangement, except as hereafter set forth, some of these being common in ordinary lathes; but I claim, first, the application of a rotary metallic form or mould, or successive forms or moulds, in combination with a proper tool or tools, roller or rollers, sustained, moved, and directed, in a proper path, by competent mechanical means, for the purpose of operating on a disc, blank, or plate of metal, so as to reduce it gradually from the centre to the edge, at the same time forming it with straight sides, by successive stages, into a complete kettle, or into any similar article, to the forming of which the apparatus can be applied, substantially as described.

Second, the construction of the mandrel, part of which is cylindrical and part fitted with a short screw, to take the screw of the hand wheel so that great pressure may be made at the point desired, while, at the same time, the mandrel can be easily and quickly moved through a long distance, for the purpose as described.

To Wm. and Wm. H. Lewis, of New York City, for improvement in Adjusting Lenses.

We do not claim to be the inventors of any of the parts described and shewn; neither do we mean to limit the application of these means to camera, but to use the same, to adjust the focal distance of lenses in optical instruments wherever the same may be made available.

We claim the combination of the pins, spring, and groove, with the two cylinders, for the purpose as described.

To N. B. Marsh, of Cincinnati, Ohio, for improvement in Stethescopes.

I claim the double branch connected with the main trunk, so as to enable persons to use both ears simultaneously, as set forth and described.

To J. P. Pepper, of New Britain, Ct., for improvement in Mineral Composition resembling Jasper.

I claim the manufacture of a mineral composition, having the external characters above described, by the fusion of clay with alkali, soda, lime, and sulphate of copper, as described, or their equivalents, and working the composition into articles of utility and ornament, in the manner described.

To D. R. Richards & J. F. Flanders, of Newburyport, Mass., for improvements in rotating Tumbler Locks.

We do not claim a combination of geared change wheels and notched circular plates applied together in one common arbor, so that the said change wheels and circular plates, shall lay side by side on the said arbor, by which arrangement they require to be removed from the arbor, in order to change the catch of any one wheel from any notch or hole of its circular plate, into and other of the notches or holes of the said plate.

But we claim combining with the rotary tumblers and change gears, arranged as set forth, the projection or tooth, or its mechanical equivalent, and the sliding frame, or its equivalent, for holding and guiding the tumblers during their rotations, and for moving them out of or into connection with the change gears, all substantially as specified.

And we also claim the arrangement of the tooth or bit, and the stud, on a sliding and turning shaft, in combination with the arrangement of the arm and the tumblers, so that when a person tries to move the tumblers, he cannot get end-play on the bolt, and vice versa.

And in combination with the change gears and the arbor, we claim the friction spring or springs and plate, for the purpose described.

To F. A. Rockwell, of Ridgefield, Ct., for improvement in Candlesticks.

I do not claim the employment of a movable detached cork, or other elastic substance, over which a sliding socket is allowed to move; nor do I claim the employment of a sliding socket, but I claim the employment, in the sliding socket candlestick, of elastic packing attached to the standard of the candlestick, substantially in the manner described, whereby I am enabled to support the sliding socket, prevent the leaking of the grease, and also am not obliged to use so long a sliding socket, as where a cork is inserted loose in the socket.

To C. W. Russell, of Washington, D. C., for improvement in Chimney Caps.

I do not claim either the arch on the end plates, or the inclined plates, and irrespective of the devices in connection with them, but I claim, first, the flanges, applied to the arch in combination with the end plates, substantially in the manner set forth.

Second, the inclined plates applied to the arch, substantially as specified.

To Henry Skinner, of Attica, N. Y., for improvement in Churns.

I make no claim to originality of invention in any of the individual parts of the churn, except the dasher, and this I claim only when it is constructed with inclined perforated paddles and tapered elbow tubes, combined, for directing the cream or milk upward, and also throwing it centrifugally against the ribs and concave surface of the churn tub, during the operation of churning, in the peculiar manner set forth.

To N. W. Speers, of Cincinnati, Ohio, for Blind and Shutter Operator.

I claim the combination of the extension handle, provided with taper ends, with the lever and the studs, or their equivalent, by which the handle can, by extension, be made to possess the requisite leverage, and by which, when the lever arrives at that portion of its sweep corresponding to the required position of the blind or shutter, it is firmly secured in its position, and the handle placed out of the way, by being thrust home against the studs, the whole being arranged substantially in the manner described.

To J. W. Thorp, of South Weare, N. H., for improvement in Apparatus for Pressing Garments.

I claim suspending the goose in a tailor's pressing machine, from a carriage travelling on rails, on the end of a vertical spindle; also arranging said spindle so that it may be moved vertically, and swivel or turn upon its axis, substantially as set forth.

I also claim arranging said goose upon the rod passing through the forked end of said spindle, so that it may slide forward and back upon said rod, as set forth.

Furthermore, I claim the combination of a goose, arranged substantially as descibed, so as to move in the several directions specified, with a platform box, susceptible of adjustment, as specified, and heated substantially as set forth.

To S. F. Tracey, of New York City, for improvement in processes for Smelting Copper Ores.

I claim the use, as a flux for ores, combined with an excess of silica, of the sub-silicate of iron obtained from the second smelting, or from iron furnaces.

The grinding of the Regulus or mat to a powder, instead of merely breaking it into lumps or fragments, so that a perfect oxydation can be obtained, and leaching with water, which aids the oxidation and extracts the sulphuric acid, when generated, as that acid greatly retards the refining process when combined with the metallic copper.

To Edward Virtue, of Philadelphia, Pa., for improvement in Tailors' Measures.

I claim the mode of cutting coats and vests by making all the principal parts to depend, in length, on the length of the breast measure, substantially as described.

To T. B. Wheeler, of Albany, N. Y., for improvement in Grain Sieves.

I claim forming sieves for separating grain from straw, chaff, and all extraneous matter, and for the analogous purposes, of sheet metal, with apertures cut or otherwise made in it, and inclined leaves under the said apertures of corresponding form with the apertures themselves, substantially as set forth.

[NOTE.—In the above list of patents granted last week, five of the applications were prepared in this office.

Lignin.

THE WOODY FIBRE.—This most important proximate principle of vegetables exhibits itself in a variety of forms, constituting the different textures of hard and soft wood and various fibrous products, such as flax, hemp, cotton, &c. When by fine mechanical division it is reduced to a pulpy state, it is formed into paper. When, by different reagents, all the soluble matters are extracted from wood, the insoluble residue is lignin: its ultimate components are charcoal, oxygen, and hydrogen, the latter elements being in the same ratio as in water: so that wood may be considered as a compound of carbon and water, and according to Dr. Prout's experiments, almost exactly in equal weights. Lignin is very imperishable; but under certain circumstances it is attacked by the dry rot, arising out of the parasitic fungus, which causes a rapid decay. Damp timber, in situations where air has not free access, is particularly subject to its attacks; and when once it has made its appearance, the well-seasoned timber in its neighborhood becomes liable to the same disease. The dry rot may be prevented by impregnating the timber with certain saline solutions, and of these a solution of corrosive sublimate has been found most effectual: the chloride combines chemically with lignin, and the compound is very indestructible. Lignin has also a strong attraction for alumine; and hence linen, cotton, paper, and other forms of this fibre, may be aluminized by steeping them in hydrated alumine, diffused through water; or, more effectively by soaking them in certain aluminous solutions, drying them, and afterwards washing out the excess of the salt. It is in this way that cotton goods are impregnated with alumine for the purpose of dyeing and calico printing. Other metallic oxides exhibit similar attractive powers, especially the oxide of iron.

The analogy that exists between the composition of sugar, gum, starch, and even vinegar and lignin, suggests the possibility of the conversion of those proximate elements into each other; and it has accordingly been found that by carefully roasting pure and fine sawdust, it is rendered partially soluble in water, and that a part of it is converted into a nutritious substance, probably intermediate between sugar and starch; and which when mixed with a little flour, yields a palatable bread, not very unlike that made by some of the inhabitants of the northern parts of Europe of the bark of trees. Mixed with sulphuric acid, lignin passes into gum; and from this sugar may be obtained by boiling it for some hours in a very dilute sulphuric acid; this sugar, when purified, much resembles grape or honey sugar. By this process rags may be converted into nearly their own weight of this peculiar saccharine matter.

The production of vinegar by the destructive distillation of the wood was originally suggested about the middle of the 17th century, by Glauber, a celebrated German chemist of that time; it has lately become a very important branch of manufacture in this country.

It is much used in calico printing and dyeing, by making two mordants out of it—viz., red mordant and black mordant. The first is used for red and yellow dyes and colors; the latter for black and purple. The former is made by adding alum to the wood vinegar, and sometimes a little acetate of lead; and the black mordant (iron liquor) is made by dissolving clean pieces of iron into it; it is the acetate of iron. A manufactory of this liquor, we believe, exists in North Adams, Mass.

Upon the whole, there are very few natural products equally important with lignin in their applications to the useful and ornamental arts.

Population and Extent of the United States.

The late census presents the following important table of statistics, giving the number of inhabitants in each State and Territory, the area of each State, and the number of inhabitants to the square mile:

State.	Area in sq. miles.	Population in 1850.	No. of inhabitants to sq. m.
Maine	30,000	583,189	19·44
New Hampshire	9,280	317,964	34·26
Vermont	10,212	313,611	30·07
Massachusetts	7,800	994,499	126·11
Rhode Island	1,360	147,544	108·05
Connecticut	4,674	370,791	79·33
New York	46,000	3,097,394	67·66
New Jersey	8,320	489,555	60·04
Pennsylvania	46,000	2,311,786	50·25
Delaware	2,120	91,535	43·64
Maryland	9,356	583,035	62·31
Virginia	61,352	1,421,661	23·17
North Carolina	45,000	868,903	19·30
South Carolina	24,500	668,507	27·28
Georgia	58,000	905,999	15·68
Alabama	50,722	771,671	15·21
Mississippi	47,156	606,555	12·86
Louisiana	46,431	511,974	11·02
Texas	237,321	212,592	·89
Florida	59,268	87,401	1·47
Kentucky	37,680	982,405	26·07
Tennessee	45,600	1,002,625	21·98
Missouri	67,380	682,043	10·12
Arkansas	52,198	209,639	4·01
Ohio	39,964	1,980,408	49·55
Indiana	33,809	988,416	29·23
Illinois	55,405	851,470	15·36
Michigan	56,243	397,654	7·07
Iowa	50,914	192,214	3·77
Wisconsin	53,924	305,191	5·65
California	188,981		
Minnesota	83,000	6,077	·07
Oregon	341,463	13,293	·03
New Mexico	210,744	61,505	·28
Utah	187,923		
Nebraska	136,700		
Indian	187,171		
Northwest	587,564		
Dist. of Colum.	60	51,687	861·45
	3,231,595	23,080,793	

To this number should be added about 200,000 for California and Utah.

We will endeavor to present more information, pertaining to the last Census, in future numbers.

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TO CORRESPONDENTS.

G P, of Mich.—We think there is no journal of chemistry and pharmacy published here: the article upon inks you will find in one of our late numbers.

S. V. S., of Pa —The balance, after paying for the subscribers you sent, we have passed to your credit on subscription, which will render the time of expiration with you No. 52 Vol. 7.

E. S., of Mich.—The best work on Mechanical Drawing, with which we are acquainted, is Minifie's: price $3, exclusive of postage.

R. C. K., of Fla.—The package of back numbers of the Scientific American, which you ordered sent to your club by vessel, was shipped on the 16th inst., in the bark Glen, addressed as you directed. We thank you very kindly for raising so large a club for us.

A. P. R., of N. S.—We do not think your suggestion about the steam could be made practically useful: we believe it has been tried. The respirator is, without doubt, a useful article; in many places it has been employed to advantage—patents already exist in this country for the same article.

J. S. D., of Tenn.—Your drill is not patentable: Hall's patent covers all the novel points.

A. W., of Pa.—We think such instruments as you require can be had of Benj. Pike, Jr., 294, Broadway. No new publications upon the subject has appeared of late.

D. W., of Mass.—Your inquiry about the shingle machine is not understood by us.

A. C., of Ct.—No wonder we misapprehended the purport of your letter, but it was not our fault. We will be happy to hear of your success with the boiler, but you must consult economy of construction as one element of useful improvements.

H. J., of N. Y.—You ask, 'what would be the increase of power in your re-action wheel, with one discharge, if two openings of discharge are made—and what would be the horse-power moving under a head of 95 feet?" We cannot tell, for you have not stated whether a pint of water or 50 cubic feet are discharged per second: "the power is as the quantity of water and perpendicular height."

J. C., of R. I.—We must say, without any further consideration, that no such a thing as a self-acting motive power—perpetual motion—can be constructed: it is against the well-tried laws of mechanics. We have had the same plan as yours submitted to us a number of times—once from Mr. W. Foster, of this city, and once from Mr. J. Harvey, now of Indiana: don't spend money on it, for the power required to raise one of your floats, is just equal to the power required to sink its fellow.

D. P. A., of Ohio—There is no publication devoted to carving that we know of, and presume there is none.

H. T., of N. Y.—You inquire what we think of it: we reply—well; send a model.

H. F., of Pa.—There is nothing in your arrangement for cutting sausage meat that will interfere with any existing patent, and it appears to us that it has new and patentable features in it: you had better send us a model.

J. M. C., of N. Y.—If your fountain pen is different from others in use, a patent could be obtained for it. The idea of supplying ink to a pen from the stock that retains it when not in use is well known, and patents have been issued for a number.

R. E., of Pa.—We know nothing of the utility of the Digestive Fluid: pepsin relates to a peculiar animal principle secreted by the stomach, and present in the gastric juice. There are many nostrums offered in the market that we have no confidence in; a well bred physician is more competent to prepare remedies than a majority of those claiming to have discovered wonders.

S. W., of N. Y.—There is no patentable combination in your device, and would be rejected for want of novelty.

Money received on account of Patent Office business for the week ending December 20.

C. A. M., of N. Y., $38; G. W., of N. Y., $60; C. B., of O., $50; A. G. B., of Mass., $50; W. B. O., of Ct., $30; J. J., of N. J., $55; W. D., of Pa., $50; A. S., of Pa., $10; S. M. P., of Pa., $20.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Dec. 20:—

C. & J. K., of N. Y.; J. J., of N. J.; S. M. P., of Pa.

An Important Paragraph.

Subscribers names, as they now come in, will be entered to commence with No. 14, the first number on the second quarter, unless the back numbers are expressly ordered.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

Sending Receipts.---Postage on Books.

The Post Office Laws do not allow publishers to enclose receipts; when the paper comes regular subscribers may consider their money as received.

Subscribers ordering books or pamphlets are particularly requested to remit sufficient to pay postage.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.

Of Volume 4, about 20 Nos.; price 50 cts.

Of Volume 5, all but 4 numbers, price, in sheets, $1, —complete sets, bound, $2,75.

Of Volume 6, all; price in sheets, $2; bound, $2,75.

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Terms of Advertising.

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them at any price.

American and Foreign Patent Agency

IMPORTANT TO INVENTORS.---The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

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128 Fulton street, New York.

TO STAIR BUILDERS—" The Universal Stair Builder," just published by R. A. CUPPER, Architect, New York, shows plans of the various forms of Stairs, with a new method of sawing the twist part of any handrail and joints, square, from the face of the plank, and to a parallel width, the same as for any horizontal work, which can be done at the sawmill for one-sixth part of what it costs by hand.—The saving of material and labor is from 50 to 100 per cent. The work is beautifully executed, and the diagrams drawn to a large scale, so that the simplest mind can understand it. Price $6. For sale by Wm Gowans, 178 Fulton st., N. Y.; Benjamin Green, 124 Washington st., Boston, Mass., and at 240 West 26th st., N. Y. Books can be forwarded to any part of the United States, by enclosing the money. 15 3*

WATER POWER, &c., For Sale—Or Lease for a term of years, a small but very valuable Water Power, together with machinery for manufacturing carriage hubs; also three circular saws, one upright saw, and one lathe—all in running order. The water is taken after being used by other machinery, is conveyed in a stone race to and from the building, so that a very trivial, if any expense, can possibly ever accrue. Also two very pretty Cottages, nearly new, and one building lot. The above property is situated in the beautiful and flourishing village of Windham Centre, Greene Co. N. Y., on the Catskill and Ithica turnpike, 25 miles west of the Hudson river; a plank road from thence to Coxsackie is finished to within 9 miles. Most kinds of lumber plenty at from $5 to $8 per M. Price for the whole, $2,000. For other particulars, address DOTY & DOTY, Windham Centre, N. Y.

NOTICE To Railroad Companies—Mr. Robt. Griffiths has taken measures to procure a patent for his improved machine for Making Railroad Chairs of any kind that can be made of wrought-iron,—superior to any now in use, with much less labor than usual. The machine will be ready for operation in a few days, and contracts will be received, and meet with immediate attention, by addressing ROBERT GRIFFITHS, care of Reynolds, Kyte & Tatum, Water street, Cincinnati, Ohio. 1*

WANTED—Estimates for a Steam Saw Mill, of from 25 to 35 horse-power, to be built on the St. Johns River Florida. Estimate No. 1—With steam engine, boiler, pipe, gearing, belting, tools, apparatus, and everything furnished complete, except building materials. Estimate No. 2—Same as above, with the exception of steam engine and boiler, complete, which will be furnished by the owner. Estimate No. 3—For erecting the above, provided all the materials are furnished by the owner, and means of conveyance found. Address (post-paid) Wm. L. M. BUTLER, care of H. H. Salmon, 30 Front st., New York. 1*

VENTILATION.—Mr. Ruttan, of Coburg, Canada, is desirous of an opportunity to direct the erection (for ventilation) of a good dwelling or school house in the city of New York. For particulars inquire at the Scientific American Office. 15 10*

WANTED—To purchase, 10 or 12 ring and traveller Twist and Filling Frames, of 132 to 160 spindles each, new or second hand, in first rate order—also one pair of hand mules, of 500 to 600 spindles, each second-hand. Address DAVID TRAINER, Marcus Hook, Pa. 15 4*

HAWKIN'S Stave Dressing Machine—Is now in operation in the city of Milwaukie, Wis., and will dress from 6 to 8000 staves per day, ready for the truss hoops, and at one operation. Rights for States and Counties, and also machines, for sale, apply to WM. HAWKINS, Patentee, Milwaukie, Wis. 15 20*

ADIRONDAC American Cast Steel.—This steel has recently been greatly improved in uniformity, soundness, strength, and toughness. It is purely American, and will be sold as low as the imported; this improved quality is warranted superior to any other in market. Friends of home industry are requested to try this new and uniform steel.

QUINCY & DELAPIERR,
15 6* Warehouse 81 John st., N. Y.

THE EXCELSIOR Sand and Emery Papers. are offered as new and superior articles, being manufactured by an improved process; the paper is made from the best Manilla hemp, and consequently is very strong and lasting; the grit is of the sharpest and most enduring kind, and is firmly attached to the paper with a remarkable evenness of surface; their freeness from ridges, stripes, and other imperfections, recommend them to the notice of consumers. These papers have been used by many of our first mechanics, and are pronounced superior to all others. Every sheet is stamped Blanchard & Parsons, and warranted. Samples furnished at the office, No. 187 Water street (2nd story), New York.

14 6m* BLANCHARD & PARSONS.

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13tf

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TRAUTWINE ON RAILROAD CURVES.—By John C. Trautwine, Civil Engineer, Philadelphia; just published and for sale by WM HAMILTON, Actuary of the Franklin Institute. Price $1.

"This is a really good work, and we heartily recommend it to our civil engineers."—[Scientific Am.

"We have carefully examined this work, and regard it as the best that has yet appeared on the subject," &c.—[Am. Railroad Jour. 8 10*

POST'S PATENT SLIDING DOOR FRONTS—For Stores and Public Buildings; a new, cheap, and simple fixture for securing store fronts, which renders them fire and burglar proof, has been invented and patented by the subscriber, who is now prepared to sell rights. Messrs. Quarterman & Son, 114 John st., N. Y., are general agents. Address (post paid) Wm. POST, Architect, Flushing, L. I. 6 3m

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PROFESSOR ALEX. C. BARRY'S TRICOPHEROUS OR MEDICATED COMPOUND.—Professor Barry does not hesitate to put his Tricopherous, for the two grand requisites of efficacy and cheapness, against any preparation for cleansing, renewing, preserving, and strengthening the Hair, that has ever been advertised or offered for sale. He challenges the associated skill and science of the medical world to produce, at any price, an embrocation that will reduce external irritation, cure ordinary cutaneous diseases and severe cuts, sprains, pains, &c. Sold in large bottles, price 25 cents, at the principal office, 137 Broadway, New York, and by the principal merchants and druggists throughout the United States, Canada, Mexico, West Indies, Great Britain, France, &c. 4 12*

BILLINGS PATENT BAND WRENCH, for Wagons and Carriages.—This article is fully described and illustrated by engravings in No. 7, Vol. 7, of the Scientific American. The Patent Band Wrench applies to wagons and carriages where the common or square nut is used. They are perfectly tight and prevent all dust and dirt from reaching the axle. The wheel is taken off by means of a small pocket key. A Silver Medal was awarded this article by the American Institute at their late Fair in this city. The Bands are manufactured by the Patent Band Wrench Co., located at Claremont, N. H. Smith Van Horn & Co. are the agents for this city. Orders addressed to them, as above, will meet with prompt attention. A. M. BILLINGS,
12tf General Agent for the Co.

ENGELBRECHT & HOOVER, No. 257 Broadway, (Opposite the Park), New York, in the business of a general Patent Agency, and matters connected with the purchase and sale of inventions and patents. At the above establishment any acknowledge good invention, or Letters Patent, can be purchase or sold for any portion of the United States or Europe. 12 4*

DR. T. F. ENGELBRECHT, T. D. HOOVER.

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 pounds, price $600. I will furnish a man with each lathe, who will turn and finish axles for 50 cents each, if desired. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 7 6m*

THE SUBSCRIBER has on hand several improved Steam Engines of superior quality, and made of the best materials, particularly adapted to manufacturing, saw mills, flour mills, &c. He will also make to order, at the shortest notice, engines and boilers of from 2 to 50 horse power, with all their appendages; prices reduced. Also, shafting, mill gearing, saw mills, presses, drills, &c. He has also facilities for furnishing lathes, planes, and scroll chucks, of the most approved styles and patterns, at short notice. Chain pumps always on hand, wholesale and retail, at No. 4 Howard st., New Haven, Ct.

10 7* AARON KILBORN.

1851 TO 1856.----WOODWORTH'S PAtent Planing Machines.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Machine. Price of the machine from $150 to $760. For rights in the unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 9 10*

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11tf

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BALLOONS.—I am prepared to manufacture Hydrogen Balloons of from 1 pound to 50,000 lbs. ascending power to order. Balloons capable of carrying up one or two persons always on hand. The Balloons will be of the most perfect construction, so that any person can, with certainty and safety ascend with them. Instructions to insure success given to purchasers gratis. JOHN WISE, Lancaster, Pa. 9 10*

TO BLACKSMITHS AND SPRING MAKERS.—The undersigned has an application for a patent now pending at the U. S. Patent Office for an improved Elliptic Spring Joint. Its expense is only one-fourth as much as that of those in common use. Upon the receipt of one dollar, a fine descriptive engraving of this joint with directions for constructing the same, will be sent to any person so remitting, and also one individual right to make, use, and vend the same, as soon as the patent is issued. This is no untried invention; it has been tested with perfect success, and reliable certificates from those who have used this joint, will be given on application, post-paid, to S. S. BARRY, Brownhelm, Lorain Co., Ohio. 13 3*

P. W. GATES'S PATENT DIES FOR CUTTING SCREWS—Patented May 8th, 1847.—This Die cuts Screws of any size, V or square thread, by once passing over the Iron. Also, Lead Screws for Lathes, Hoisting Screws, &c. All orders for Dies and Taps, with or without machines, will meet with prompt attention by addressing P. W. Gates, or Gates & McKnight, Chicago; Marshall, Bement & Colby, Philadelphia; Woodburn, Light & Co., Worcester, Mass. References—All the principal machine shops in New York, Philadelphia, and Boston. 13 6m*

CHAS. W. COPELAND, Consulting and Mechanical Engineer, Surveyor of Steam Machinery, &c, No. 68 Broadway, N. Y.—Superintends the construction of steam vessels, and steam engines and machinery of every description; specifications and contracts prepared; also, general plans and drawings in detail furnished. Steam engines surveyed and valued, and condition reported. Mr. C. also acts as agent for the purchase and sale of steam vessels, steam engines, boilers, &c. 14 4*

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do.; 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing; counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 9tf

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BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 5tf

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WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions. Orders respectfully solicited and punctually attended to. Washington Factory, Newark, N. J. 7 20*

PAINTS, &c. &c.—American Atomic Drier, Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.

QUARTERMAN & SON, 114 John st.,
9tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 1tf

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LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers—from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England Scotland, France and Germany—for Locomotive Marine and other steam Engine Boilers.

THOS. PROSSER & SON, Patentees,
1tf 28 Platt-st. N. Y.

MALLEABLE IRON FOUNDRY, EASTON, Mass.—The subscriber continues to manufacture castings of every variety, for machinery and other purposes, of the best quality, at the above establishment, we have facilities for making castings 5 1-2 feet in length. Persons wishing castings can send patterns to Easton Express, Boston, Mass. All letters will be promptly attended to.

8 10* DANIEL BELCHER.

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, New Haven, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 37tf

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LEONARD'S MACHINERY DEPOT, 109 Pearl-st. 60 Beaver N. Y.—The subscriber is constantly receiving and offers for sale a great variety of articles connected with the mechanical and manufacturing interest, viz.: Machinists' Tools—engines and hand lathes; iron planing and vertical drilling machines; cutting engines, slotting machines; bolt cutters; slide rests; universal chucks &c. Carpenters' Tools—mortising and tennoning machines; wood planing machines &c. Steam Engines and Boilers from 5 to 100 horse power. Mill Gearing—wrought iron shafting; brass and iron castings made to order. Cotton and Woolen machinery furnished from the best makers. Cotton Gins; hand and power presses. Leather Banding of all widths made in a superior manner; manufacturers' Findings of every description. P. A. LEONARD. 10tf

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MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

RAILROAD CAR MANUFACTORY—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty, and good taste, as well as strength and durability, we are determined our work shall not be surpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

BEST CAST STEEL AXLES AND TYRES, (a new article,) for Railroad Carriages and Locomotives. The quality of this steel is sufficiently attested in the announcement that it has carried off the first prizes awarded at the World's competition of 1851, in London. The axles are in general use on the Continent, and are now offered in competition with any other that can be produced; and to be tested in any way that may be desired by the engineers of the United States, either by impact or by torsion. This steel is manufactured by Fried Krupp, Esq., of Essen, in Rhenish Prussia, represented in the United States by THOS. PROSSER & SON, 28 Platt st., N. Y. 2tf.

IRON FOUNDERS MATERIALS—viz.: fine ground and Bolted Sea Coal; Charcoal, Lehigh, Soapstone and Black Lead Facing. Iron and brass moulding sand; Fire Clay, Fire sand and Kaolin;—also English, Scotch and Welsh Fire Bricks—plain arch, circular and tower cupola—for sale by G. O. ROBERTSON Liberty place, between 57 and 59 Liberty-st. (near the Post Office) N. Y. 7 12*

McCORMICK'S PATENT REAPERS AND MOWERS.—1700 of these machines, for which the great Medal of the World's Fair was awarded, are being manufactured at Chicago, Ill, with the intention of supplying the South-eastern States for the next harvest. The gold medal of the Chicago Institute was recently awarded for this Reaper and Mower, tested against two other mowers, in cutting prairie grass; and the first premium of the State Agricultural Societies of Wisconsin, Michigan and Pennsylvania, were also awarded at their late Fairs. Price $120 at Chicago, and $122 delivered at Philadelphia; terms otherwise accommodating. 9tf

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SCIENTIFIC MUSEUM.

Model for a Fast Steamboat.

The Washington correspondent of the Atlas says :—

"There is a drawing in the Navy Department, of a new steamboat which is about to be built in New York, for the Hudson River, and which is to make the trip from New York to Albany in five hours. She is intended to compete with the New York and Albany Railroad. By the kindness of Commodore Skinner, we obtained her proportions, which are as follows :—Length of keel 500 feet; length of deck, 350 feet. She looks like a sword-fish. There is 75 feet of keel at each end, extending out from the deck, which shows itself above water, and which is sharp and pointed like the sword of a sword-fish. Both ends of the boat are alike, and her engines are to work both ways. She is not intended to turn round, but to work like a ferry-boat. She is to be called the George Washington, and to have accomodations for three thousand passengers. She will make the passage of 150 miles in five hours. She has been designed and modelled by Mr. Davidson, of New York.

Fire Alarm Telegraph.

The people of Boston are constructing a fire-alarm telegraph. Forty-nine miles of wire have been stretched over the city, diving under the arm of the sea which separates the main portion from South and East Boston. The first of the forty cast iron signal boxes has been placed on the Reservoir in Hancock street. These will be so distributed that every house in the city will be within fifty rods of one. Whenever a fire occurs, resort will be had to the nearest box, where, by turning a crank, instantaneous communication will be made to the central office, and from that—which stands related to the whole fire department of the city like the brain to the nervous system—instant knowledge will be communicated to the seven districts into which the city is divided, by so striking the alarm bells simultaneously that the locality of the fire will be known exactly to all. This system, the perfect success of which is now certain, will stand forth as one of the finest achievements of scientific skill, and a source of just pride to Boston.

(For the Scientific American.)

Pile Foundations.

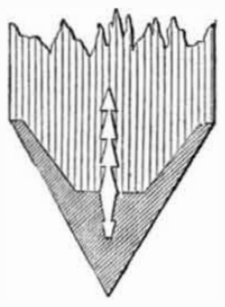
The empirical rule given in your 12th number, for the weight which can be safely trusted on a pile, though from a very respectable authority, does seem to me very far from established and practiced rules. The action produced by percussion cannot be compared to the action by pressure, as in the quoted example; the power by pressure is valued only by the number of pounds per square inch.

After a great number of very accurate experiments made by Rondelet and Gauthey, eminent French engineers, the pressure sufficient to crush a cubic block of wood, is, for oak, 6,056 lbs. per square inch; for pine, 7,100 lbs. per square inch.

But it has also been ascertained—1st. That the resistance does not decrease as long as the height of the block does not exceed 7 or 8 times the base. 2nd. A post will bend when its height is more than 10 times the base. 3rd. When the height is 16 times the base, the post is no more safe to bear any weight. From these, the following progression has been established:—For a cube of which the height is 1 ft., resistance is 1, or 24-24; for a post 12 ft., resistance, 5-6 or 20-24; post 24 feet, resistance 1-2 or 12-24; post 36 feet, resistance 1-3 or 8-24; post 48 feet, resistance 1-6 or 4-24; post 60 ft., resistance 1-12 or 2-24; post 72 feet, resistance 1-24.

The weight which can safely be trusted on the head of a pile driven in the ground, is practically valued at 50 kilogrammes per square centimetre, or 712 pounds per square inch, of the average section of the pile, (1 square inch equals 6·45 square centimetres). A pile of 5 or 6 yards long should be 10 or 12 inches diameter, measured in the middle of its length: suppose it to be 12, the surface of the section will be 113 square inches: 113×721= 80,456 pounds for each pile, and as they are generally placed 3 feet apart, the average weight for each of them is greatly reduced. The weight of brick walls is about 3,150 lbs. per cubic yard; then the pile above would bear 25 cubic yards, which would give a wall 75 yards high, supposing it to be 1 foot thick, or 25 yards high supposing it to be 1 yard thick.

CAST-IRON SHOE.

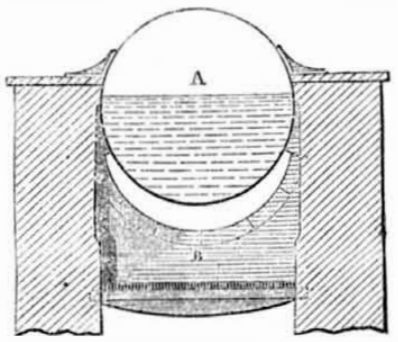


A pile is found sufficiently driven when, after a volley of thirty successive strokes of a ram weighing 900 lbs., the pile has not gone down more than 1-8th of an inch. The steam hammer is used successfully for the purpose in foundations of bridges where piles are very numerous. The piles are furnished with an iron shoe, often set at the largest end of the pile, so as to reduce the friction of the pile against the ground; the best shoe is made of cast-iron. It is found superior to wrought-iron, and a great deal cheaper, the cast-iron one amounting to only one-fifth of the cost of the other; it is conical, and its vertical section is an equilateral triangle. E. Bonnet.

New York, 1851.

On Boilers.---No. 5.

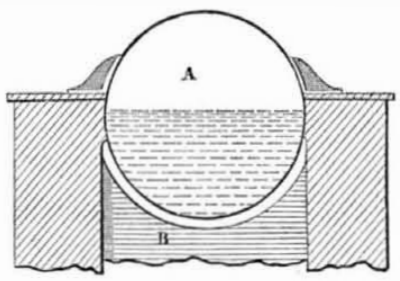
Fig. 10.



Fire and Flame Bridges.—It is very important that all boilers of any considerable length, and particularly when erected on the direct-draft plan, should be provided with several flame bridges under them, commonly called "check bridges," but perhaps improperly so, from the supposition that their proper office was only to check or impede the too rapid current of hot air and flame in their passage to the chimney, and consequently to retain the heated gases longer under the boiler, which they certainly do quite as effectually as causing the smoke to travel through long, narrow, tortuous flues. This, however, is the least important purpose they subserve.

The above, fig. 10, is a transverse section of one of a number of boilers which were erected, says Armstrong, by a firm in Manchester several years ago, all of which are yet in work, showing how the boiler is hung upon cast-

Fig. 11.



iron brackets, rivetted to the boiler, A, a little above its centre, and resting by broad flanges on the top of the side walls.

This boiler was purposely chosen of this simple plan, and put up in the cheapest and simplest manner with a direct draft, so that any alterations or improvements that might have been found expedient to make, either in the setting or construction of the boiler, might be in the shape of additions merely, and therefore being separately proved, both as to first cost and actual worth; and also that observations might be made upon it for a sufficient length of time, without the liability of error either from complication of construction or from interruptions owing to the necessity of stopping to clean out the flues or otherwise. It was thus made to answer the purpose of a trial boiler, in order to guide the firm to which it belonged in their choice of the kind of boilers to adopt in the erection of some new works.

One of the flame bridges is shown in elevation in fig. 10. It is an inverted arch, 5 inches from the boiler bottom, and equally distant all round. Too much attention cannot be paid to the proper construction of these bridges; for neglect in this matter has always been the cause of any great waste of fuel that has ensued on putting up a direct-draft boiler. If too great a space is left above them, it is almost as bad as if the bridges were left out altogether; for then the flame is apt to divide itself into two currents, one on each side of the boiler, and thus run off to the chimney without taking much effect upon the boiler bottom.

Their proper office is principally for the purpose of spreading the flame and heated air around the convex heating surface, so as to completely envelope the lower half of the boiler in a stratum of flame of comparatively equal thickness or uniformity.

Similar observations may be made with regard to the fire bridge, B, represented in fig. 11. It is too frequently built by bricklayers in the form of a horizontal wall of very little elevation at the end of the fire grate, in evident ignorance of what the proper functions of a boiler bridge consist, and as is also evidenced by the name of "stop," or "fire stop," that is commonly given to this bridge, from the supposition that its only use could be to prevent the stoker from pushing the coals over the end of the fire grate. Its most important object, however, is, like that of the flame bridge, to act as a dam for the current of flame and gas to flow over.

The top of this bridge is described by a circle of the same radius as the boiler, A, at about 10 inches below the boiler bottom, as shown in figure 11, which is a vertical section of the furnace across the back end of the fire grate on a scale of $\frac{1}{4}$th of an inch to a foot. This fire bridge reclines backwards, with a batter of about 6 inches in the middle, diminishing to each side of the furnace, where the upper part of each wing of the bridge is vertical.

The Power of Mind on the Untutored Savage.

The delegation of Indians from the West, says the Republic, now on a visit to Washington City, were taken, last week to the Navy Yard at that place, to see the operations there. Nothing struck them with so much surprise as the steam engine, which spoke to their minds in the deep humming of the rapid revolving wheels and the tremors of the ground upon which they stood. One of them remarked, "they were now certain that nothing was impossible to the white people, they were next in power to the Great Spirit." Surrounded as we are by such evidences of the work of mind, they fail to make more than a passing sensation, but to the untutored savage they conveyed a world of new ideas which filled him with wonder and delight.

Tobacco for Snake Bites.

Mr. Editor—As corroborative of your views of the efficacy of tobacco juice, in the cure of snake bites, I send the following:—Some years ago my father was bitten by a copper-head snake, he instantly applied the juice of strong tobacco, mingled with saliva from the mouth, and so perfect was the cure, that he did not lose a day from business on account of it. W.

Cure for Toothache.

Two parts of brown sugar, two parts of tar, and one part of finely ground black pepper: mix them cold, and apply a portion to the affected part. Repeat this occasionally, for a day or two, and a perfect cure will be effected. I have tried it twice with entire success on my own teeth. My neighbors have found it equally efficacious. W.

Cornersville, Tenn.

Tea, Coffee, and Wool.

The importations of tea, coffee, and wool into the United States, during 1851, as shown by the statement accompanying the Report of the Secretary of the Treasury, were as follows: tea, $4,798,004, whereof was re-expoted $1,129,064, leaving for consumption in the United States $3,668,141. Coffee imported, $12,851,070; re-exported, $336,000, leaving for consumption, in the United States $12,515,070. Wool imported, $3,883,160, re-exported, $7,966, leaving for consumption in the United States $3,825,194. The importation of wool in 1850, was valued at $1,681,000, showing an increase in the value of the importation the last year of over two millions of dollars.

LITERARY NOTICES.

American Phrenological Journal.—This excellent Journal is published in New York on the first of each month: it is devoted to science, literature, and general intelligence, illustrated by numerous engravings, executed in the finest manner. Though ostensibly established to propagate the science of Phrenology, its contents are so varied as to embrace scientific and miscellaneous information, and it is every way an ornament to the periodical literature of the country. We recognize in the Journal a powerful auxiliary to the cause of education, an able supporter of morals, a potent and influential agent in the cause of reformation and progress in an enlarged and comprehensive sense. The typographical appearance is complimentary to the craft, and if we were not modest in expressing our opinions, we should pronounce it the handsomest publication in America. Published by Fowlers & Wells, 131 Nassau st., at $1 per annum. A new Volume commences with the January number.

The Water Cure Journal.—The Thirteenth Volume of this widely circulated and popular journal commences on the first of January: we have often spoken of it, and as many of our readers are its subscribers, we need not descant largely upon its merits. We regard it as a useful periodical, and believe it is working a grand sanitary mission. The editors and contributors are independent and labor zealously without fear or favor, and it is refreshing to read its beautiful and clearly printed pages. Each number contains several fine illustrations. Published by Fowlers & Wells, 131 Nassau st., at $1 per annum.

The Guardian—A Family Magazine, devoted to the cause of Female Education on Christian principles: edited at the Female Institute, Columbia, Tenn., by F. G. Smith and others: terms, $1 per annum, monthly, and a very excellent publication. We thank the Editor for his favorable notice of our efforts to throw light upon the "Fire Annihilator."—Examining the prospectus of the above institution, we should think it well managed, and an ornament to the State.

The Student—A Family Miscellany and Monthly School Reader, devoted to the physical, moral, and intellectual improvement of youth: N. A. Calkins, Editor: Fowler & Wells, publishers, 131 Nassau st., New York, at $1 per annum. We regard this work as a valuable accessory to every household. The subjects treated in its columns are well calculated to direct the minds of youth to high and honorable aims, and we wish it to attain a position corresponding to its importance as a work for youth. Its columns are not supplied with vagaries, but with wholesome truths and practical suggestions.

The Excellent Women—A book of Essays, by W. B. Sprague, D. D., upon the 31st chapter of Proverbs. Each chapter is beautifully embellished with an engraving, and the writings of Dr. Sprague are a sufficient recommendation to the work. The book is tastefully got up, and is in every respect a suitable holiday gift. Published by Gould & Lincoln, Boston, and for sale in this city by E. H. Fletcher, 141 Nassau st.

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